**U.S., Congress, Committee on International Relations, Special Subcommittee on Investigations, *Oil Fields as Military Objectives: A Feasibility Study*, Report Prepared by the Congressional Research Service, 94th Cong., 1st sess., August 21, 1975, (Washington, DC: US Government Printing Office, 1975), Parts I and II, pp. 1-39.**

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ABSTRACT

The possible use of U.S. military force to occupy foreign oil fields in exigency first surfaced as a serious issue in January 1975. This paper provides perspective, so that the Congress if need be could participate most meaningfully in deliberations to determine the *desirability* and *feasibility* of any such action.

Analysis indicates that sustained sanctions by all or most of OPEC's members would disrupt America's fundamental lifestyle and degrade U.S. security, although survival would never be at stake. By way of contrast, the vital interests of our major allies could quickly be compromised.

Any decision to ease agonies at home and (if need be) assist allies would be conditioned by political, economic, social, legal, and moral factors, but if nonmilitary facets were entirely favorable, successful operations would be assured only if this country could satisfy all aspects of a five-part mission:

--Seize required oil installations intact.
--Secure them for weeks, months, or years.
--Restore wrecked assets rapidly.
--Operate all installations without the owner's assistance.
--Guarantee safe overseas passage for supplies and petroleum products.

American abilities to cope with steps one through four would be suspect if sabotage were the only serious threat. U.S. parachute assault forces are too few to cover all objectives quickly. Amphibious forces are too slow. Skilled teams could wreak havoc before we arrived.

Presuming sufficient assets remained intact to serve U.S. interests, long-term security would remain a challenge. Two to four divisions plus substantial support would be tied down for a protracted period.

Shortages in specialized manpower and materials would make damaged facilities hard to repair or replace. Indeed, drafting U.S. civilian workers to supplant foreign counterparts might be mandatory.

Direct intervention by Soviet air/ground forces, a distinct possibility considering the strategic nuclear standoff, might make our mission impossible if we hit in the Middle East. Other areas would be mainly immune from such perils, but Soviet submarines would pose a serious problem if they struck in force--U.S. escort vessels are insufficient to msure safe passage for tankers and supply ships in any area, except the Caribbean.

In short, success would largeiy depend on two prerequisites:

--Slight damage to key installations.
--Soviet abstinence from armed intervention.

Since neither essental could be assured, military operations to rescue the Umted States (much less its key allies) from an airtight oil embargo would combine high costs with high risks. U.S. strategic reserves would be stripped. Prospects would be poor, and plights of far-reaching political, economic, social, psychological, and perhaps military consequence the penalty for failure.

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## OIL FIELDS AS MILITARY OBJECTIVES
### A Feasibility Study

> *Question.* Mr. President, both you and Secretary Kissinger have said that in case of strangulation of the West by the oil producers, you would use military force. * * * The American people would like to know whether you would require a congressional declaration of war or whether you would bypass that constitutional process, as some of your predecessors have done?
>
> Answer. I can assure you on any occasion where there was any commitment of U.S. military personnel to any engagement we would use the complete constitutional process that is required of the President.
>
> President GERALD R. FORD, Press Conference, January 21, 1975.

### BACKGROUND, PURPOSE, AND SCOPE

The possible use of U.S. military force to seize foreign oil fields if the "industrialized world" were being economically "strangled" by any combination of petroleum exporting countries first surfaced as a serious issue in January 1975. 1 The President, Secretary of State, and Secretary of Defense all addressed that subject. 2 Influential periodicals simultaneously began printing a spate of unofficial studies, speculation, and scenarios. 3 Interest in the subject continues. 4

All public pronouncements pertain to hypothetical propositions. The Chief Executive and key Cabinet members identify armed intervention as a last resort, after all other efforts have been exhausted and survival is at issue. However, the fact that they hold military options open creates a need to separate fact from fantasy in ways that facilitate sound decisionmaking.

The purpose of this paper is to provide perspective, so that Congress could participate most meaningfully in deliberations to determine:

--Whether we should go to war to excise the effects of any given oil embargo against the United States and/or its allies.
--What strategic and tactical objectives would best serve U.S. purposes if the answer were affirmative.
--What forces would be essential.
--What special expenditures could be expected.
--What risks would be entailed.
--What benefits could accrue.

The resultant survey covers the immediate future only, through the 1970's. Thereafter, new United States and allied sources of energy could make armed intervention against petroleum producers an irrelevant act. However, the principles discussed herein could be applied to potential crises concerning other critical resources later in this century.

Petroleum statistics were drawn from authoritative public documents. Military data were derived from the best available open sources. Many figures are in flux. Some conflict with those in other publications, but discrepancies are matters of minor detail, which in no way invalidate basic conclusions.

The end product is not a brief for or against U.S. military operations to seize OPEC oilfields. Neither is it a contingency plan. It simply is a feasibility study that probes problems "in the round," with full recognition that any decision to condone the use of force would be conditioned by a spectrum of political, economic, social, legal, and moral factors that transcend purely military matters. 5

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***Footnotes to Background***

1 For an introductory chronology see Helms, Jesse A. "Misjudgments in the Middle East," Remarks In the Senate, *Congressional Record*, Jan. 23, 1975, pp. 8791-8792.

2. See annex A for selected quotations.

3. For the seminal study, see Tucker, Robert W. "Oil: The Issue of American Intervention." *Commentary*, January 1975, pp. 21-31. Among succeeding essays, the most noted thus far has been Ignotus, Miles (a pseudonym, reportedly for "a Washington-based professor"), "Seizing Arab Oil," *Harper's*, March 1975, pp. 45-62. Rebuttals are found in Ravenal, Earl C., "The Oil-Grab Scenario," *The New Republic*, Jan. 18, 1975, pp. 14-16 and Stone, I. F., "War For Oil?", *The New York Review*, Feb. 6, 1975, pp. 7-8, 10.

4. J. William Fuibright, former Chairman of the Senate Committee on Foreign Relations, most recently theorized on this subject. See Fuibright's 1980 Middle East Scenario (which actually commences with an oil embargo and U.S. military counteractions in 1976), *Washington Star-News*, July 13, 1975, pp. E-1, E-4.

5. See annex B for a glossary of special terms. Annex C contains abbreviations.

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## PART I: PRIMAL PROBLEMS

### VITAL INTERESTS RELATED TO OIL

The only vital national interest, by definition, is survival. States cease to exist if they fail to safeguard that essential. Threats to survival thus warrant severe countermeasures.

Less crucial interests include national security, freedom of action, fundamental lifestyles, vigor, and values. Life goes on if those elements are undercut, but conflicts often occur when people find physical and/or psychological pains intolerable.

Economic warfare, most notably oil embargoes, currently could threaten most modern societies just as surely as nuclear weapons. Degrees of vulnerability depend on relationships between each country's requirements on one hand and its resources plus stockpiled reserves on the other.

#### U.S. INTERESTS

Oil provides 46 percent of all energy consumed in the United States-almost half. 1 Domestic production supplied about 63 percent of the petroleum consumed in 1974. The rest had to be imported. (Data displayed in tables 1 and 2 at the end of this section include some months affected by the Arab oil embargo of 1973-74, but are reasonably representative.)

*The importance of imports*

The brief embargo from mid-October 1973 through mid-March 1974 was sponsored solely by Arab States and allowed considerable leakage. Some tankers with false manifests found t.heir way directly from the Persian Gulf to U.S. ports. Others took devious routes with full Arab knowledge. 2 Nevertheless, that restrained effort showed how susceptible this country would be to renewed pressures. 3

The United States could absorb a new Arab boycott by reducing consumption slightly. (See table 3.) However, our troubles would intensify tremendously if the entire Organization of Petroleum Exporting Countries (OPEC) imposed airtight sanctions, which someday could be the case. That cartel recently confirmed its readiness to "counteract * * * threats with a unified response whenever the need arises." 4

Neither Canada nor friendly Caribbean states (now major U.S. suppliers) could help take up the slack, even if they wanted to. 5 OPEC provides almost half of Canada's petroleum. Refineries in Trinidad and Tobago, the Bahamas, and Netherlands Antilles also depend on OPEC oil. Crude oil sources would dry up if any of those parties transshipped to the United States during an embargo.

Consequently, it is realistically possible to postulate a worst case condition depriving the United States of most imports. If so, an energy shortage approximating 13 percent of current consumption could be expected.

*Short-term conservation measures*

Should serious shortages occur as a result of economic sanctions by unfriendly States, three domestic courses of action in combination would be open to U.S. decisionmakers: use stockpiles to take up the slack; augment U.S. output; reduce the rate of consumption.

Stockpile figures fluctuate. The Defense Department maintains modest inventories (exact sizes are classified). Current civilian crude oil stockpiles could match demands for about 65 days if necessary. Separate caches of refined products ostensibly could extend that time limit, but substantial stocks likely would be shifted to military channels in emergency. 6 Such transfers in fact took place in November 1973, during the Arab oil embargo, as authorized by the Defense Production Act of 1950. 7 Consequently, little relief is likely from that quarter.

Steps to increase U.S. production would bring forth few immediate benefits. Naval Petroleum Reserve No. 1 (NPR-1) at Elk Hills, Calif. reportedly would take months to prime. Activating NPR-4 in Alaska would take much longer, since its assets still await full exploration and development. 8 Technical adjustments to amplify the output of U.S. fields now in operation would also be protracted projects. Outer Continental Shelf (OCS) development will take at least 5 years. 9

Cutting consumption using techniques outlined in table 4 could create quick and sizable savings approximating 1 million barrels a day (6 percent of current consumption), according to administration authorities. 10

Thereafter, the law of diminishing returns would take over. U.S. Armed Forces, for example, already have severely curtailed maneuvers, other training exercises, ffight schedules, and ship steaming time for Reserves as well as active elements. 11 Additional restrictions would affect operational readiness adversely. Sharp cutbacks in defense and some segments of the civil economy could cause chain reactions, resulting in recession, unemployment, and other problems.

Mid- and long-range conservation measures, combined with accelerated efforts to enhance U.S. self-sufficiency in forthcoming decades, might stimulate the economy, but could not forestall immediate crises.12 Neither could oil shales, nuclear fission, or futuristic fuels such as solar and fusion energy.

*Consequences assessed*

Sustained sanctions by the Arab States, perhaps abetted by Iran, would disrupt this country domestically and degrade U.S. security, but not even a full scale OPEC oil embargo would threaten U.S. survival, our only vital interest. Energy shortages averaging 10-15 percent could be tolerated until permanent adjustments were made.
In the process, however, severe economic and social problems probably would alter America's fundamental lifestyle. Oil shortages up to 50 percent, for example, could be

expected in New England and some Mi(ldle Atlantic States. Shifting essential oil supplies from west to east would be a slow, laborious process. Pipelines are few and capacities low. Tankers would have to transit the Panama Canal, which excludes all such ships larger than 65,000 deadweight tons.

ALLIED INTERESTS

Serious oil embargoes would shatter Western Europe and Japan, whose current dependence on petroleum greatly exceeds our own (table 5). Their sources are almost exclusively external. Britain and Norway should improve their position when North Sea fields go into full production, in 1980 and 1975 respectively, but the rest of NATO and Japan will be at OPEC's mercy until other energy sources emerge. 13

Severe sanctions by oil producing countries thus would involve vital interests at a very early stage, "strangling" Nippon and NATO in every sense of that word. Political, military, economic, and social interests in America would suffer accordingly.

Table 1--U.S. Oil Consumption, 1974

| | Million Barrels per day | Percentage |
|---|---|---|
| Domestic crude production | 8.4 | 63 |
| Natural gas liquids, etc. | 2.1 | |
| Imports (crude plus refined) | 6.1 | 37 |
| Total domestic supply for consumption | 16.6 | 100 |

Source: American Petroleum Institute. "Annual Statistical Review, Petroleum Industry Statistics, 1965-74," Washington, May 1975. p. 13.

Table 2--Current Sources of U.S. Oil Imports
(Direct Shipments of Crude and Refined Products, 1974)

| | 1,000 barrels per day | Percentage |
|---|---|---|
| OPEC | | |
| Venezuela | 980 | 16.1 |
| Arab OPEC members | 748 | 12.3 |
| Nigeria | 713 | 11.7 |
| Iran | 469 | 7.7 |
| Indonesia | 300 | 4.9 |
| Other OPEC members | 65 | 1.1 |
| Total OPEC | 3,275 | 53.8 |
| Non-OPEC | | |
| Bahamas/Caribbean 1 | 1,396 | 22.9 |
| Canada | 1,067 | 17.5 |
| Other Arab states | 34 | 0.6 |
| All others | 316 | 5.2 |
| Total, non-OPEC | 2,813 | 46.2 |
| Grand total | 6,088 | 100.0 |

1. Includes Virgin Islands and Puerto Rico

Source: American Petroleum Institute, "Annual Statistical Review: Petroleum industry statistics, 1965-74," Washington, D.C., 1975, p. 10-11

Table 3--U.S. Shortages if the Arab States or OPEC Ceased All Exports to the United States and Canada

U.S. Energy Consumption, 1974

| | Oil or oil equivalent (thousands of barrels per day) | As percent of total energy | As percent of total oil | As percent of total imports |
|---|---|---|---|---|
| Total Energy | 36,150 | 100 | -- | -- |
| Total Oil | 16,629 | 46 | 100 | -- |
| Total Oil Imports | 6,088 | 17 | 37 | 100 |
| OPEC | 3,275 | 9 | 20 | 54 |
| Caribbean 1 | 1,396 | 4 | 8 | 23 |
| Canada | 1,067 | 3 | 6 | 18 |
| All Arab | 782 | 2 | 5 | 13 |

U.S. Vulnerability to Embargo, 1974
(in percent)

| | Impact on U.S. | | Impact on U.S. | |
|---|---|---|---|---|
| | Shortage without conservation | | Shortage if conserve 1,000,000 barrels a day 2 | |
| | Total oil | Total energy | Total oil | Total energy |
| All Arab | 5 | 2 | 0 | 0 |
| OPEC | 20 | 9 | 15 | 6 |
| OPEC, Canada | 26 | 12 | 21 | 10 |
| OPEC, Canada, and Caribbean 1 | 35 | 16 | 30 | 13 |

1. Caribbean includes Trinidad and Tobago, Bahamas, Leeward-Windward Islands, Netherlands Antilles, Puerto Rico, and Virgin Islands

2. Calculate as 1,000,000 barrel per day reduction in total energy, and total imports.

Source: American Petroleum Institute, "Annual Statistical Review: Petroleum industry statistics, 1965-74," Washington, D.C., 1975, p. 10-11, 45.

Table 4--Selected Short-term Oil Conservation Measures

National Defense:

Limit aircraft flying hours
Limit ship steaming time
Reduce training exercises

Electric utilities:

Brown-out (reduce voltage)
Reduce air conditioning
Eliminate lights for advertising

Motor transportation:

Stress mass transit, car pools
Ban driving nights and Sundays
Increase fuel taxes sharply

Industry/commerce:

Convert from oil to coal (if facilities already installed)
Restrict nonessential production
Eliminate nonessential travel

Residential:

Restrict services (trash pickup, etc.)
Turn off selected street lights
Increase utility taxes sharply

Table 5--Petroleum Imports and Consumption in Selected NATO Countries and Japan

| | Oil as percent total energy consumption | Imported oil as percent of total oil requirements |
|---|---|---|
| United States | 46 | 37 |
| Canada | 44 | 0 1 |
| NATO Europe | | |
| Belgium | 60 | 100 |
| Denmark | 98 | 100 |
| France | 66 | 99 |

| | | |
|---|---|---|
| Germany | 55 | 95 |
| Italy | 85 | 100 |
| Netherlands | 46 | 96 |
| Norway | 46 | 70 [2] |
| United Kingdom | 46 | 100 [2] |
| Japan | 75 | 100 |

1. Canada currently imports about half of its domestic needs, but exports about the same amount to the United States.

2. Norway should become self-sufficient in oil when North Sea fields reach planned production in 1975. Britain, which began producing on June 18, 1975, will lag by about 5 years.

Source: "The Relationship of Oil Companies and Foreign Governments," Federal Energy Administration, International Energy Affairs, Feb. 15, 1975.

DOMINANT DECISIONS

U.S. DECISIONS

*Decision No. 1: Is force justified?*

This country could survive full-scale OPEC sanctions, as the foregoing treatise indicates. Indeed, one sizable school of thought suggests that a severe oil embargo could be a blessing in disguise if it compelled the United States to mend its immoderate ways at the fastest possible pace. 14 Many reputable men who subscribe to that sentiment find military solutions iniquitous and inappropriate. As alternatives, they advocate bilateral negotiations, international arbitration by the United Nations or disinterested third parties, and counterembargoes that cut off U.S. military aid and trade to intransigent States or freeze their financial assets and investment opportunities in America.

Proponents at the opposite pole lack the patience or proclivity to abide OPEC-induced adversity for long. In their opinion, it would be immoral to make the American people pay a high price in money and misery over many months (or years) if U.S. persuasion and other pressures failed to lift the embargo quickly. Robert Tucker, a spokesman for that group, put it this way: "It is excessive to insist that before using force one must exhaust all other remedies," if the consequences would create economic "chaos." 15

The key question, then, is: "At what juncture (if any) would the United States be justified in using armed force to relieve pressures such as OPEC could impose?"

There are no easy answers.

From the standpoint of Congress, three salient considerations condition this stage of the decisionmaking process: 16

--*International law.*
--*Constitutional responsibilities.*
--*Public opinion at home and abroad.*

*International law*

The conduct of U.S. foreign affairs is governed in part by treaties. Official pronouncements of international organs like the United Nations also are influential. So is customary law, which helps establish guidelines for our dealings with the global community. However, which sources are pertinent and which are inapplicable is open to interpretation. (See annex C for verbatim extracts from selected documents.)

Take the matter of "aggression" as a case in point. Simply defining that term is a contentious matter, since international law lags in economic and ideological fields, where nonviolent actions supplement or supplant armed combat. 17

"Intervention of an economic nature becomes aggression if it jeopardizes essential rights of a state which are requisites to its security," according to some authorities. 18 Others see economic aggression simply as steps that "endanger (a state's) basic economy." 19 Attempts to differentiate between "illegal" and "legitimate" means are unfortunately fuzzy.

The United Nations takes a far narrower tack. Its Charter of Economic Rights and Duties unequivocally defends every country's "full permanent sovereignty including possession, use, and disposal, over its wealth, natural resources, and economic activities." 20 States are forbidden to use such capital for coercive purposes, 21 but if they do, "no consideration of whatever nature * * * may serve as a justification for aggression," which the United Nations defines solely as "the first use of armed force." 22

America's allies might invoke the principle of self-preservation to override the U.N. edict and break an embargo by force, 23 but no equivalent avenue would be available to the United States, which could survive OPEC sanctions. At best, we might cite blameless self-defense (a less compelling claim) as our best legal excuse. 24

Possible U.S. precedents that might favor armed actions to alleviate economic afflictions appear only in the distant past, simply because this country's abundant natural resources until recently ruled out effective enemy embargoes. Even the War of 1812 is an indistinct instance, because the British employed blockades instead of boycotts to aim "a destructive blow * * * against our agricultural and maritime interests." 25

Negative precedents are easier to come by. The United States condemned Japan for using armed force to improve its economic position, which suffered severely from American and allied embargoes before Pearl Harbor. 26 Authorizing U.S. armed force to offset an OPEC oil embargo thus might be awkward for Congress to approve.

In short, the legal implications of any U.S. determination to violate the sovereignty of foreign States in response to economic injuries are inconclusive. Decisionmakers who demand irreproachable authority before approving such steps may well withhold approval. Those who view laws as flexible instruments may find rationalizations.

*Constitutional responsibilities*

Those prescient statesmen who framed our Constitution were resolved that no one man should commit this country to war. The separation of powers consequently reserves for Congress the exclusive right to declare wars, although most constitutional scholars recognize that, the Chief Executive must be able to respond rapidly in emergency. (See annex C for verbatim tracts from the Constitution and other pertinent documents.)

The President, in his oath of office on inauguration day, swears or affirms that he "will to the best of [his] ability, preserve, protect, and defend the Constitution of the United States," whose preamble includes a prescription to "provide for the common defense [and] promote the general Welfare." 27 Article II, section 3 further directs him to "take care that the laws be faithfully executed." Said laws implicitly include "treaty obligations; any obligation *inferable* from the Constitution; and the rights, duties, and obligations growing out of the Constitution itself, international relations and all the protection implied by the nature of government under the Constitution" [emphasis added]. 28

Presidential responsibilities in that amorphous context are rather elastic. Ostensibly, they would allow the President to commit U.S. Armed Forces without congressional

concurrence--as often occurred in our history--if, in his judgment, military power provided the most appropriate reaction to an oil embargo. 29

Congress, however, would have recourse if it disagreed.

The War Powers Resolution of 1973, vetoed by President Nixon as "clearly unconstitutional," was written into law when Congress disregarded his contention (see annex C for full text). Section 1 expressly stipulates that "collective judgment * * * will apply to the introduction of U.S. Armed Forces into hostilities, or into situations where imminent involvement in hostilities is clearly indicated." If the President dispatches armed elements in emergency, they must withdraw within 60 days unless Congress acquiesces, according to section 5. That short period, even augmented by the 30-day extension authorized under extenuating circumstances, would of course preclude lengthy operations. "Forces shall be removed [even earlier] by the President if the Congress so directs by concurrent resolution."

The War Powers Resolution in itself is not conclusive. Its legality has never been tested in the courts. Nevertheless, Congress does have a very sharp tool at its disposal with which to shape such decisions: appropriations powers under article I, section 8 of the Constitution, which in the past have effectively forestalled the use of U.S. Armed Forces abroad. 30

The President, therefore, would be most likely to collaborate closely with the Congress, as the quote which opens this study suggests.

*The role of public opinion*

World public opinion is rarely pervasive. Most often, it reflects reactions by the masters (rather than the masses) of States that share common interests at specific instants. 31

Neither does world public opinion exert persistent pressures. The Soviet savaging of Czechoslovakia that caused so much commot~oll in 1968 was quickly forgotten by all but the principals. Some cynics, exaggerating to emphasize that point, cite 6 weeks or so as the limit of sustained emotion by observers (as opposed to participants). A pendulum effect frequently is evident-witness the dispassion with which much of the world viewed the war in Vietnam during the early 1960's; active support for U.S. involvement in the mid-1960's; disillusioned indignation in the late 1960's; active calls for U.S. disengagement in the early 1970's; and the subsequent drift toward indifference, despite continued conflict.

Allied approval of American actions to seize foreign oilfields almost certainly would reflect the respective attitudes of specific countries and coalitions, not U.S. cohorts en masse. Those whose interests were surely served as well as our own probably would ratify U.S. decisions. Those who perceived ill-starred prospects likely would oppose, as would the so-called Third World, which presently presents a unified front on many issues in the United Nations and other forums.
The practical consequences would be inconsiderable if rhetoric were the only weapon outraged countries wield. 32 However, this country's global reputation for decency conceivably could be diminished. Reprisals could range from political, economic, and psychological punishment to armed combat. U.S. diplomatic relations, installations and citizens overseas, trade, and commerce--including traffic in critical items other than oil--all could suffer from calculated or spontaneous acts intended to change our course. Terrorism could not be ruled out. Soviet military options would be particularly pertinent.

Neither Congress nor the executive branch could count on apathy to soften adverse opinion abroad. The probable predilections of foreign powers thus would have to be appraised accurately and consequences weighed before, not after, decisions were taken.

Moods in America would be even more important. Perhaps the most pointed lesson U.S. leaders learned in Vietnam was that national decisions, however desirable they may otherwise seem, must be acceptable to the people.

No great problems would surface if U.S. survival were at stake and the public knew it. War would be acceptable to most "hawks" and "doves" alike if we faced fatal strangulation by OPEC-there would be nothing to lose. In this case, however, controversy could be anticipated, since vital interests would not be at issue. Impatient men might well insist on military action to seek quick relief. Stoics likely would stress long-term solutions. Congress, with its thumb on the public pulse, would be best prepared to detect the predominant viewpoint. Indeed, that contribution to the decisionmaking process would be critical.33

The administration, Congress, or both--assisted by the mass media--could take steps to sway public opinion one way or another if they believed it advisable, although success would not be assured. In the final analysis, decisions that avoided war at all costs could be just as disastrous as those that initiated invasions if official judgment and the national consensus failed to coincide.

*Decision No. 2: Whose interests to safeguard?*

Decision No. 1 is comparatively uncomplicated. American interests alone would be involved. Two other contingencies could call for far more complex decisions:

--Should we safeguard allied interests as well as our own if embargoes engulfed us all simultaneously?
--Should we safeguard allies if they were faced with fatal embargoes that did not touch this country?

Honest men approach those propositions from sundry directions. Divisions thus are diverse and deep.

Influential factions, for example, contend that this country is responsible only for itself. 34 The slogan "Come Home, America" was coined to serve a special purpose, but it still appeals to a substantial slice of the U.S. population, which opines that outsiders should solve their own problems--we have enough to keep ourselves well occupied in the United States. Sad experiences in Southeast Asia currently strengthen such conclusions.

Others infer that U.S. interests are inseparable from those of NATO Europe, and probably Japan. Robert Tucker, who recently wrote "A New Isolationism: Threat or Promise?", seems a curious champion for interdependency, but he spells out the case for succoring allies quite succinctly:

> Even the few among us who have argued for a radical contraction of America's interests and commitments have done so on the assumption that the consequences of an American withdrawal would not be a world in which America's political and economic frontiers were coterlninous with her territorial frontiers, and in which societies that share our cultures, institutions, and values might very possibly disappear. 35

Deliberations in the clutch would be conditioned by strong emotions on both sides. Many elements in the decisionmaking matrix, including those already discussed, would be magnified.

U.S. treaty commitments would offer scant encouragement to U.S. leaders probing for legal permission to employ troops. The North Atlantic Treaty specifies that "an *armed attack* against one or more [members] * * * shall be considered an attack against them all", obligating the United States to take "such action as it deems necessary, including the use of armed force" (emphasis added). Military reprisals in response to economic aggression, however defined, are nowhere mentioned. 36 In the Treaty of Mutual Cooperation and Security between the United States and Japan, both States agree "to refrain in their international relations from the threat or use of force against the territorial integrity * * * of any State, or in any other manlier inconsistent with the purpose of the United Nations"--which brands the first use of armed force as aggression. 37

Constitutional constraints would be identical with those surveyed in the previous section.

Public opinion once again could be expected to provide key input to any "go-no go" decision.

OPEC DECISIONS

Most discourse in open print dwells on the gravity of potential U.S. decisions to seize OPEC oilfields, but overlooks difficulties that would plague opponents before they chose to scourge the United States.

A few words provide perspective.

OPEC's members, especially prime movers astride the Persian Gulf in Iran and Arab States, have been free from foreign occupation or "oppressive" foreign influence for only a few years. An American invasion would cut short their freedom of action, which they cherish above all else.

Those same countries depend almost entirely on oil revenues to fund fabulous development programs and underpin their new-found status as world powers. Both benefits would be abridged for a protracted period if the United States seized their oil fields. 38 Significantly, tho Arabs States also would lose financial resources that currently fuel the fight against Israel.

OPEC countries could not function in accustomed fashions if oil commerce were cut off. The spectre of "leftist radicals" replacing the ruling order in disrupted States could be cause for concern.

OPEC countries in the Middle East depend heavily on U.S. arms for psychological and practical purposes. Existing inventories would be depleted quickly if the United States canceled further shipments including spare parts, and terminated training programs, together with technical assistance.

OPEC's principal recourse in such circumstances would be appeals for greater support from the Soviet Union, which orthodox Moslems especially fear and distrust.

Consequently, considerable leeway for serious negotiation seems to exist, with realistic possibilities for concessions by all parties concerned. OPEC would have everything to lose and little to gain by any embargo that invited armed reprisals by the United States.

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## PART II: GLOBAL PERSPECTIVE

### MANDATORY MISSIONS

Political, economic, social, legal, and moral issues just outlined deal with the desirability of seizing OPEC oil fields to crush severe embargoes. However, if all such facets were favorable, armed force would be appropriate only if achievability seemed assured.

Step one in testing for military feasibility is to sort out mandatory missions, both military and civilian. The irreducible minimum follows:

--Seize sufficient oil fields and facilities intact.
--Secure them for a protracted period.
--Restore wrecked assets rapidly.
--Operate installations without OPEC's assistance.
--Guarantee safe overseas passage for supplies and products.

Successful U.S. operations would be possible only if this country had the power to satisfy all five elements. Succeeding sections of this study examine prospects.

### COUNTERINTERVENTION THREATS

American aims just mentioned would by no means be self-fulfilling. OPEC and its sympathizers pose present and potential threats. (See table 6 at the end of this section for force summaries.)

In each instance, these threats comprise capabilities tempered by intentions.1 This brief discourse outlines both.

### OPEC THREATS

OPEC countries have few capabilities beyond their own frontiers. Terror tactics against the United States, NATO Europe, and/or Japan constitute the sole exceptions.

*Capabilities*

OPEC capabilities outlined below could be administered singly or in various mixtures:

--Surrender preemptively; negotiate a settlement.
--Oppose United States/allied assaults with forces shown in table 6.
--Interdict United States/allied shipping locally.
--Conduct guerrilla warfare.
--Sabotage ports and airfields.
--Sabotage oil installations.
--Conduct terror campaigns abroad.

*Intentions*

Any OPEC countries invaded by embargoed States would have a lot to lose (see p. 13). Preemptive surrender thus would be a practical possibility.

Current statements of intention, however, reject that course of action. Specifically, OPEC sovereigns and heads of State "declare their readiness * * * to counteract [U.S./allied] threats with a unified response whenever the need arises, notably in the case of aggression." 2

*Discussion*

The regular Armed Forces of OPEC countries, singly or in coinbination, are quantitatively and qualitatively inferior, when compared with those of great powers. They could be swiftly crushed. 3 Iran, a future exception, is still far more fearsome on paper than in practice, despite U.S. arms, equipment, and training. At best, Iran's Army, Navy, and Air Force could compel us to pay a price in battle, but could not bar U.S. landings.4

OPEC forces have minimal capabilities to interdict U.S. merchant shipping by military means, even in their own coastal waters. They lack requisite air and naval power or, in the case of Iran, could be contained in cul-de-sacs.

Neither are most OPEC areas suitable for blockades. The Strait of Hormuz is a salient exception. Iran's military forces could seed that passage with mines if this country hit Persian Gulf States. Presuming such efforts succeeded, we would he hard pressed to convey petroleum promptly from the Persian Gulf to consumers.5 That strategy, however, would keep all OPEC countries in the Middle East from shipping produicts to neutral states.6 The Shah thus would likely be reluctant to take such steps, unless Iran itself were invaded.

Guerrilla warfare in conjunction with or as a substitute for conventional defense would be a credible OPEC option in Nigeria's jungles, marshes around Maracaibo, and Iran's rough terrain, where raiders would find sustenance and shelter. Commandos, operating from Omani coves, conceivably could stick limpet mines on supertankers that traverse the Strait of Hormuz at night. Conversely, scant cover, combined with comprehensive U.S. air/ground surveillance and sophisticated sensors, would inhibit enemy irregulars elsewhere in the Middle East and much of North Africa. Popski's private army, David Stirling's Special Air Service, and Lawrence's Arab radicals, who once ran rings around rivals in the desert, would find it difficult to duplicate their daring deeds under current conditions. 7 Standoff attacks and sapper strikes in open areas therefore would constitute annoyances, rather than serious threats to United States/allied activities.

Saboteurs, however, could play hob if they hit ports, airfields, and oil facilities before our landings. Wells, pipelmes, pumping stations, powerplants, storage tanks, refineries, and loading installations all are vulnerable.

Wherever wells flow spontaneously, as they do in much of the Middle East, gases could be ignited easily, and flames being constantly fed would be hard to extinguish. Even one well blazing out of control could endanger entire fields by decreasing subterranean pressures. This co~intry has the world's greatest talent for fighting oil fires, but if several flared concurrently, we would lack enough teams to cope. 8

Destroying wells, of course, would be counterproductive for OPEC if a settlement were reached quickly--rejuvenation times would be tremendous. However, attacks on ancillary installations could cripple local oil industries without endangering basic resources. Terminals, for example include a range of lucrative targets: tanks, pumps, pipes, piers--all in a compact complex. Power supplies are very susceptible to sabotage. 9 Saudi Arabia's machinery presents special problems, being the biggest in the world: the biggest gas separators (50 of them); the biggest pumping stations (2 million barrels each per day); the biggest water-injection plants (400 million cubic feet daily from Abqaiq field alone) ; tile biggest storage tanks, biggest oil port, biggest desalinization plant. One-of-a-kind items like that would be time consuming and expensive to replace. Frank Jungers, Aramco's chairman, estimates that "a quarter of the world's exports * * * would be out of commission for at least 2 years" if the infrastructure were wrecked. 10

Jungers' prediction may be overly pessinistic, given related facts. Not many OPEC members manifest the Teutonic thoroughness that made German sabotage so successful at Cherbourg in 1944. 11 No preparations are presently evident in Persian Gulf oilfields, 12 despite proclamations that "mines [have] been planted * * * and would be set off at moment's notice", if necessary. 13 In fact, prepositioning explosives could cause all sorts of problems with potentially dissident elements, like displaced Palestinians. Non-Arab States, such as Nigeria and Venezuela, sense no significant threat, and thus have little incentive to plan sabotage operations, without which damage expectations would be poor from OPEC's perspective.

OPEC sabotage efforts could well be extended to United States and/or allied territory, where oil installations would be especially tempting targets in event of an oil embargo. Instability would be intense, especially if attacks on economic assets were combined with worldwide terror tactics.

## SOVIET THREATS

OPEC's military threats to United States/allied operations are meaningful only on or near their own territories. Many of Moscow's capabilities have global implications.

### Capabilities

Soviet counterintevention capabilities, listed below in rough order of priority, comprise an escalation ladder:

- --Conduct propaganda offensives.
- --Increase military support to OPEC countries.
- --Conduct shows of force:
  - --Near United States/allied areas of operation; and/or
  - --Elsewhere.
- --Conduct diversions
- --Conduct harassing operations:
  - --In United States/allied areas of operation; and/or
  - --En route.
- --Blockade the area of operations.
- --Interdict United States/allied shipping.
- --Conduct air strikes against oil installations, if the area of operations is in the Middle East or eastern Mediterranean.
- --Conduct air/naval strikes against U.S. assault forces, if the area of operations in the Middle East or eastern Mediterranean.
- --Engage in ground combat, if the area of operations is in the Middle East.
- --Employ tactical nuclear weapons.
  - --Employ strategic nuclear weapons selectively.
- --Initiate a general nuclear war.

### *Intentions*

Soviet intentions are less transparent than OPEC's.

Some commentators surmise that the Kremlin would choose to stand aside, or intervene indirectly at the very worst. Tucker believes that "the balance of perceived interest, as distinguished from the balance of military forces, is certainly against the Russians." 15 Ignotus concurs. As be sees it, assuring ample oil imports during an OPEC embargo would involve crucial United States and/or allied concerns. "Denial would merely be a desirable bonus for the Soviet Union." Direct counterintevefltion thus "need barely be considered." 16

Some skeptics strongly challenge those assumptions. "We are talking about a chain of events," said one, "that, with a small but appreciable probability, would lead to a nuclear confrontation. We therefore have a right to require higher standards of proof from the proponents than from the critics of such an operation." 17

That is easier said than done, since Soviet statements thus far furnish few clues to true intentions. Pravda, for example, recently decried the "defenders of monopoly interests" in the West who reputedly resort to "military blackmail" against OPEC by hinting at armed action--but muted conclusions merely stated that "gun boat politics" were "doomed to failure." 18

Soviet decisions, taken at the time, would depend on circumstances at home and abroad. Moscow's military machine already rivals our own in most respects, and surpasses us in some. Threats thus far have been mitigated, for several reasons. Members of Moscow's ruling hierarchy are essentially conservative, despite their revolutionary records. National character, Communist doctrine, and unshakable convictions that time is on their side currently repress impulses to confront this country directly.

That situation, however, could change if U.S. economic strains caused by an oil embargo crucially undercut our diminishing military capabilities. 19 Divisiveness in U.S. ranks would further strengthen Soviet confidence, if the American people disapproved any decision to seize OPEC oiifields. The Kremlin then might consider a policy of opportunity,

characterized by reduced constraint and greater proclivities for risk-taking. 20 Such prospects may seem remote, but potential Soviet threats clearly should be counted.

*Discussion*

What courses the Soviets would select from the smorgasbord of possibilities is open to speculation. It is one thing to "fish in troubled waters", but quite another to "fight foreign fishermen."

In some respects, however, the Kremlin enjoys an enormous advantage: its capabilities to interfere anywhere outside objective areas would be low cost, low risk operations with relatively high effectiveness.

Most such options listed above are self-explanatory, but one needs elaboration.

America and its allies would have little leeway to counter Soviet campaigns against shipping on the high seas. Threats of massive retaliation would be impotent in an atmosphere marked by mutual assured destruction and the absence of defense. Restrained nuclear reprisals against selected targets in the Soviet Union would be indecisive, and provoke unpredictable responses. Risking national suicide would be rational only if our survival were directly at stake, which would not be the case.

Threats projecting U.S. general purpose power would also lack credibility. With this country's existing complement of conventional forces already committed against OPEC, ready reserves would be much reduced. Mobilizing, equipping, training, deploying, and sustaining requisite reinforcements would be a tremendous, costly, time-consuming task. Even if sufficient forces were available to challenge the Soviets on their home soil, insurmountable problems probably would remain---the only lucrative invasion avenues lead through NATO territory and the Baltic Straits, both of which could be banned.

A naval war of attrition thus remains our major reaction to attacks by soviet submarines. Since shore installations on both sides might he fair game, stringent controls would be required to restrict escalation. Maintaining open sea lines of communication under restrictive conditions could provide a real challenge until protracted antisubmarine warfare operations reduced losses to "manageable proportions." Success would not be assured. Failure would separate committed U.S. forces from supplies and shortstop petroleum shipments. 21

Soviet intervention capabilities ashore would be more inhibited.

To begin with, the Kremlin could bring only part of its power to bear. China and NATO pose competing threats. Rigid geographic restrictions further reduce the range of options. Probabilities that the Soviets might intervene in objective areas thus decrease in direct proportion to distances from their own periphery.
Backfire, Bear, and Badger bombers, for example, could easily close the Persian Gulf with mines before U.S. airpower was in place. Parachute assaults, airlandings, and other airmobile maneuvers could be completed unopposed. rfilereafter, the Soviets would find such ploys perilous. Middle East oilfields, including most of those in Iran, are beyond the combat radii of Mig fighters based within their own borders. Missions would be minus escorts unless Moscow made use of fields in Arab States or Iran (map 8) 22

Moreover, Soviet airpower unaided could neither position standard ground forces nor sustain them. Armor and other heavy, outsize items, plus nearly all supplies, would have to move overland via one of two tortuous routes. The western access, which crosses 2,000 miles from the Balkans to Basra by way of the Bosporus and Baghdad, seems most improbable. Ankara might authorize overflights if sympathies for OPEC were strong, 23 but likely would be reluctant to allow Moscow's armies to cross Turkish soil. The only alternative leads 1,000 miles from the Caucasus to Kuwait through Iran's mountain wall.

Roads in both regions are rudimentary at best. The rail "net" is nominal in most locales. Water is scarce. Intermediate way stations, supply points, and maintenance shops are nearly nonexistent. Wear and tear on men and materiel thus would be immense.

Prepositioned stocks would alleviate initial problems. Some arms equipment conceivably could be commandeered from Syria and and Iraq (especially tanks, artillery, armored personnel carriers, and motor transports). Long run troubles, however, still would remain.

In short, Soviet air-ground capabilities are circumscribed in the closest area. In remote regions, such as West Africa and Venezuela, they would be insignificant.

Table 6.--Combat Forces, Selected OPEC Countries, OPEC Sympathizers, Soviet Union

OPEC forces listed below are widely deployed in their respective countries. Some are stationed in outside states (15 percent of Saudi Arabia's army, for example, is in Jordan and Syria). Oil producing regions could be reinforced in emergency, but sizable elements would have to remain elsewhere. Armed forces not shown are negligible.

GROUND FORCES

| | | | Divisions | Brigade/Regiment | | | | |
|---|---|---|---|---|---|---|---|---|
| | Strength | Armor | Airborne | Other | Armor | Other | Battalion | Tanks |
| Mid East | | | | | | | | |
| Egypt | 280,000 | 3 | -- | 8 | 2 | 5 | 26 | 2,000 |
| Iran | 175,000 | 3 | -- | 2 | 0 | 3 | 0 | 1,160 |
| Iraq | 100,000 | 2 | -- | 3 | 1 | - | - | 1,390 |
| Kuwait | 8,000 | 0 | -- | 0 | 1 | 2 | 0 | 100 |
| Saudi Arabia | 36,000 | 0 | -- | 0 | 0 | 4 | 5 | 115 |
| Syria | 125,000 | 2 | -- | 3 | 4 | 0 | 8 | 1,670 |
| Africa | | | | | | | | |
| Algeria | 55,000 | 0 | -- | 0 | 1 | 4 | 54 | 450 |
| Libya | 25,000 | 0 | -- | 0 | 3 | 1 | 1 | 271 |
| Nigeria | 200,000 | 0 | -- | 3 | 0 | 0 | 0 | 0 |
| Venezuela 1 | 24,000 | 0 | -- | 0 | 1 | 1 | 24 | 31 |
| Indonesia | 200,000 | 0 | -- | 0 | 0 | 19 | 8 | UNK |
| Soviet Union 2 | -- | 3 | 7 | 20 | -- | -- | -- | -- |

1. Venezuela's army is being reorganized. 31 light and medium tanks are on order.

2. Except for airborne divisions, Soviet forces shown are in the southern U.S.S.R. A few are at full strength. Most are about evenly divided between category 2 (1/2 to 3/4 strength) and category 3 (1/3 strength). Full strength armored divisions have 5 medium tanks; mechanized divisions have 255. Reinforcements in European Russia are readily available.

22

TACTICAL AIR COMBAT UNITS

| | Strength | Light, medium bombers | Fighter bombers | Fighter, air defense | Combat aircraft | Other |
|---|---|---|---|---|---|---|
| Middle East: | | | | | | |
| Egypt | 28,000 | 25 TU-16, 5 IL-28. | 38 Mirage V, 100 SU-7, 100 Mig-17. | 200 Mig-21 | 468 | |
| Iran [1] | 50,000 | 0 | 902F-4D, E, 100 F-5A. | 0 | 196 | |
| Iraq | 10,500 | 8 TU-16 | 90 SU-7, 20 Hunter 57. | 30 Mig-17, 100 Mig-21. | 218 | |
| Kuwait | 2,000 | 0 | 4 Hunter 57, 112 BAC-167. | 12 F-53 | 28 | |
| Saudi Arabia [2] | 5,500 | 0 | 34 F-5B, E, 21 BAC-167. | 35 F-52, 53 | 90 | |
| Syria | 10,000 | Some IL-28 | 60 Mig-17, 30 SU-7. | Some Mig-23, 200 Mig-21. | About 300. | |
| Africa: | | | | | | |
| Algeria | 4,500 | 30 IL-28 | 20 SU-7, 70 Mig-17, 25 Mig-15, 26 Magister. | 35 Mig-21 | 206 | |
| Libya | 5,000 | 0 | 20 Mirage V | 32 Mirage III | 55 | |
| Nigeria | 5,000 | 6 IL2-8 | 21 Mig-15, Mig-17, 15 L-29. | 0 | 42 | |
| Venezuela | 8,000 | 26 B-2 | 20 CF-5A, D, 10 OV-10 E. | F28K, 13 Mirage III, 4 Mig-15, 8 Mig-17, 15 Mig-21. | About 90. | |
| Indonesia | 38,000 | 22 TU-16, 10 IL-28, 2 B-26. | 11 F-51D, 17 CA-27, 17 T-33. | | 106 | |
| Soviet Union [3] | | [4]500 TU-16, 200 TU-22. | | | | 800 Mig-17, 1,350 Mig-21, 300 Mig-23, 500 SU-7. |

[1] 80 F-14, 70 F-4E, 141 F-5E, 4 F-28 on order.
[2] 126 F-5E/B, 38 Mirage III, 9 BAC-167 on order.
[3] Soviet medium bombers have strategic nuclear capabilities. 1 TU-22 squadron is based in Iraq. About half of all Soviet tactical aircraft are oriented toward NATO, a fourth toward China.
[4] Medium bombers.

NAVY COMBATANTS

| | Destroyer Frigate Corvette | Submarine | Subchaser | Patrol boat | Guided missile boat | Torpedo boat |
|---|---|---|---|---|---|---|
| Middle East: | | | | | | |
| Egypt | 5 | 12 | 12 | 29 | 8 | 0 |
| Iran [1] | 11 | 0 | 0 | 10 | 0 | 0 |
| Iraq | 0 | 0 | 3 | 6 | 3 | 12 |
| Kuwait [2] | 0 | 0 | 0 | 10 | 0 | 0 |
| Saudi Arabia | 0 | 0 | 0 | 24 | 0 | 0 |
| Syria | 0 | 0 | 0 | 2 | 6 | 12 |
| Africa: | | | | | | |
| Algeria | 0 | 0 | 6 | 0 | 9 | 12 |
| Libya | 2 | 0 | 0 | 8 | 3 | 0 |
| Nigeria | 3 | 0 | 0 | 9 | 0 | 0 |
| Venezuela [3] | 10 | 2 | 0 | 13 | 3 | 0 |
| Indonesia | 9 | 5 | 0 | 30 | 9 | 0 |

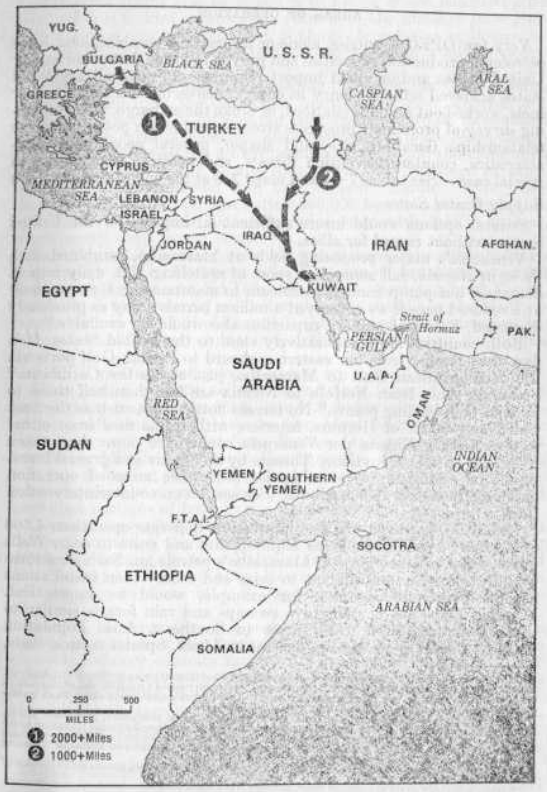
| | Submarines | | | |
|---|---|---|---|---|
| | Attack | | Cruise missile | |
| | Nuclear | Diesel | Nuclear | Diesel |
| Soviet Union [4] | 30 | 140 | 40 | 25 |

[1] 10 hovercraft in active inventory, 2 on order, together with 6 fast patrol boats.
[2] 8 hovercraft in active inventory.
[3] 2 submarines on order. Destroyer figure includes 6 destroyer escorts.
[4] Soviet cruisers and destroyers with surface-to-surface missiles also pose a threat to tankers and logistic shipping.

Source: Mainly "The Military Balance, 1974-75," London, International Institute for Strategic Studies, 1974, p. 8 -10, 32-37, 43, 68.

**Map 1.**

## SOVIET APPROACHES TO THE PERSIAN GULF



## SELECTING AREAS OF OPERATION AND OUTLYING OBJECTIVES

The five-part mission previewed on page 15 merely prescribes what Armed Forces would have to do if ordered to obtain United States and/or allied oil imports by military means against all opposition. This section concerns the question "where?"

## AREAS OF OPERATION

Very few OPEC countries, alone or in practical combinations, have petroleum production capacities and proven reserves that could satisfy United States and/or allied import requirements until all aggrieved states achieved self-sufficiency in energy, converted from oil to other fuels, worked out accommodations, or broke the embargo. 24 The following survey of prominent prospects stresses production potential, space relationships (location, size, and shape), general geographic characteristics, counterintervention threats, and political implications in special cases. (See tables 7-11 and maps 2-8 at the end of this chapter.)

*Supply United States*

Several options would insure sufficient oil imports for the United States, without regard for allies.

Venezuela's major producing fields at Maracaibo, combined with those in Nigeria, fall somewhat short of matching U.S. daily import demands, but pump enough petroleum to maintain the U.S. economy at a reduced pace if we conserved a million barrels a day as previously discussed. Essential refinery capacities also would be available. 25

Both countries are comparatively close to the United States. It is five times farther from our eastern seaboard to Persian Gulf ports via the Mediterranean than to Maracaibo, just across the Caribbean. 26 Steaming times from Norfolk to Nigeria are less than half those to Persian Gulf loading points. 27 No terrain bottlenecks, such as the Suez Canal and Strait of Hormuz, interfere with traffic flow from either locale. Neither Nigeria nor Venezuela could offer more than token resistance to a U.S. invasion. Threats by Soviet air and ground forces would be nonexistent--no otherwise acceptable areas of operation duplicate that desirable attribute. (See section on counterintervention threats for details.)

Liabilities, however, are also impressive. Separate operations 4,500 miles apart would cause force requirements and costs to soar. Wells under water produce most of Maracaibo's petroleum. Such structures would be much more difficult to seize and secure than installations ashore. Parachute assaults, for example, would be impractical. Nigeria's fields are in mangrove swamps and rain forests similar to those that frustrated U.S. forces in Southeast Asia. Population patterns there are among the densest in Africa. Special tactics, tools, and techniques would be essential in both countries. Last, but perhaps not least, all Latin America likely would censure U.S. actions if we seized oilfields in Venezuela, which is our official ally in the Organization of American States (OAS).

Maracaibo might also be linked with Libya, whose potential gross production is a third greater than Nigeria's. The distance from Norfolk to Brega, south of Benghazi, is about the same as to Bonny, on the Bight of Biafra. Beyond that, however, debits would outweigh credits.

Most Libyan oil is pumped to loading points on the Gulf of Sirte, but petroleum from the Sarir field empties out near Tobruk, 300 airline miles northeast. Substantial reinforcements would be required to secure the extra pipeline and associated installations. More importantly, Sarir crude oil has a high paraffin content, and therefore must be heated in transit. If pumps shut down from sabotage or other causes, the conduit would turn into a giant "candle." This study therefore arbitrarily excludes Sarir's 200,000 barrels a day from U.S. options shown on table 10, but includes them with NATO options, where every drop would count.

Landings in Libya almost certainly would cause serious rifts between this country and its European allies if seizing oil installations served U.S. interests, but not NATO's. Worse yet, Soviet Armed Forces, especially naval elements, are better placed to meddle in the Mediterranean than in the Gulf of Guinea. 28 U.S. lines of communication, for example, would be very vulnerable at Gibraltar and near the Sicilian narrows.

OPEC's greatest producers, of course, are in the Middle East.

There would be little to recommend Iraq, even if its 2 million barrels a day matched the 6.2 million U.S. import demand and refineries were sufficient, which they are not. Most fields, which center on Kirkuk, are 400-500 miles from Persian Gulf ports, quite isolated from other Middle East assets. Consequently, they pump petroleum to a pair of loading points along the Mediterranean. Neither pipelines nor ports could be secured unless U.S. troops were physically deployed over huge portions of Iraq, Syria, and Lebanon.

Counterintervention threats would be ]ess crucial in countries at the southern end of the Persian Gulf, where four states straggle along a 600-mile littoral arc from Bahrain and Qatar through the United Arab Amirates (UAA) to Oman. However, their combined production falls 40 percent short of U.S. requirements, and many wells are offshore.

Kuwait, in the center, is a more compact package. Its fields are within easy reach of the Persian Gulf coast. Most installations are onshore. Refinery capacity ranks with the best in the Middle East. Loading facilities are more than adequate. Daily petroleum production of 3.5 million barrels is almost 80 percent of Iraq and the UAA combined, but still scarcely more than half of America's current imports.

By way of contrast, either Iran or Saudi Arabia alone could supply U.S. needs for crude petroleum. Unfortunately, the former shares some of Iraq's most serious shortcomings. The latter is unnecessarily expansive.

Iranian oil fields, for example, are scattered for 300 miles north-to-south in rough, arid foothills of the sawtoothed Zagros range. Land routes in the region are poor. Loading facilities at Kharg Island would be easy to isolate and secure once in U.S. possession, hut the Abadan refinery complex near Iraq's frontier lies on exposed flats that invite counteractions from both sides of the border.

Iranian Armed Forces, which feature the finest U.S. fighter aircraft and a consequential navy, are the strongest of any OPEC member. Iraq's military machine is less pretentious, but poses potential threats that could not be ignored. The Tigris-Euphrates confluence and swampy delta (commonly called the Shatt-al-Arab), together with built-up areas, would afford an infinite number of safe havens from which irregulars could mount incursions. Most important of all, U.S. intrusions might incite the Shah to seek assistance from the Soviet Union, which could interfere in force from the Caucasus. 29

Selected Iranian oilflelds (2.7 million barrels a day) could be combined with those in Kuwait (3.5 million) to meet U.S. import needs, but that course would do little to downgrade threats, and would add some difficulties. Iran likely would fight as hard for half its holdings as for all. Possible Soviet responses would remain essentially constant. U.S. forces would have to seize and secure oilfield and terminal facilities in two dissimilar, noncontiguous areas.

Tailor-made amalgams involving Saudi Arabia appear more promising, since that country is less exposed to Soviet air-ground strikes and its armed forces are small. Kuwait, for example, combined with Saudi coastal fields, might prove manageable, although focal points are 250 miles apart and half the output comes from offshore. All Saudi onshore assets currently operated by Aramco 30 would suffice, but they stretch for 300 miles across sere, sandy landscape, from the neutral zone to the edge of Rub al-Khali, Arabia's empty quarter.

South Saudi onshore holdings, plus Qatar and Bahrain, are less elongated, but comprise three disconnected areas that would complicate control.

The Saudi core's great Ghawar field alone could furnish 75 percent of the full U.S. requirement. 31 Tanker turnaround times to Ras Tanura would be a day less than those to Kuwait City, 250 miles farther north. 32 Precious fuel could be conserved. That extra distance could also constrain Soviet airpower.

Offshore loading facilities at Ras Tanura and Juaymah are among the best in the Middle East, but refinery capacities would fall short by half a million barrels per day, even if all installations were seized intact, a dubious assumption. 33 Sizable amounts therefore would have to be refined in NATO Europe and the Caribbean. That course would be practical only if the countries concerned approved the forceable U.S. occupation of foreign oil fields. Concurrence could not taken for granted, since operations to supply the United States alone could be inimical to NATO's interests.

*Supply United States plus Japan*

Demands for crude petroleum would nearly double (from 6.2 to 11.6 million barrels a day if Japanese requirements were added to our own, but Japan's capacities for self-help in case of embargo would be very slim. 34 Its armed forces lack adequate mobility means and staying power to strike unaided in the Middle East, the only area with oil concentrations large enough to satisfy Nippon's full need. Japan thus would collapse economically if America were unwilling or unable to take up the slack.

Should this country elect to assist, two alternatives could be explored.

The United States perhaps could help Japan to help itself by furnishing sealift and logistic support for use by Japanese forces, If this country sought to satisfy its own import needs in Latin America and Africa. south Saudi onshore production could supply Japan's daily requirements of 5.4 million barrels (Ghawar, 4.7 million; Abqaiq, 0.9; Qatif and Dammam 0.1). If U.S. forces chose to hit the Saudi core, Japan's best targets would be Indonesia (1.4) and Kuwait (3.5) in combination. Offshore wells at Safaniyah, the northernmost Saudi field, could furnish most of the difference, should that seem desirable. 35 Terniinal facilities in Kuwait, includhig a refinery, would facilitate service.

Alternatively, the United States could expand its areas of operation to compensate for shortages remaining after Japan seized oil installations in Indonesia. Maracaibo, Nigeria, and Libya in aggregate would be unable to satisfy the residual United States/Japanese requirement of 10.2 million barrels, even if U.S. forces could cope simultaneously with three separate theaters. This country thus would have to confine efforts to the Middle East, where the Saudi core and nearly contiguous Kuwait would suffice.

*Supply United States plus NATO Europe*

Supplying this country plus NATO would be far more difficult. No choice is encouraging.

This country's European allies, like Japan, have strictly circumscribed capabilities. French and Italian air/ground forces are relatively free, but other NATO countries, including Germany, are constricted by current commitments or simply lack abilities to project a potent punch much beyond their borders. Consequently, NATO's self-help program, carried out by a small segment of the Atlantic Alliance, would at best be limited to occupying oil installations in Libya and Algeria, which could cover 4.3 million of the 15.2 million barrel NATO requirement. Sufficient allied sea power is available to support such endeavors, but complications ashore could be expected, since some Algerian fields are 600 miles south in the Sahara, and part of .Algeria's oil is pumped through Tunisia.

NATO shortages of 10.9 million barrels a day (almost double U.S. import requirements) could be alleviated only if America took action to seize all assets in Saudi Arabia and Kuwait, along with most of Iran's petroleum. Iran's contribution could be reduced to 55 percent if U.S. forces took all odds and bods from Bahrain to Oman, but the territory would then be tremendous--perhaps 1,000 straight line miles north to south, an expanse equal to that between Washington and mid-Missouri. Manpower and materiel requirements would be immense.

The OPEC cartel might break if United States and NATO elements seized a smaller package, but planners could not depend on it.

*Supply United States plus Europe and Japan*

Insuperable problems emerge at this stage. Assets in all the Middle East, (less Iraq) and North Africa would be adequate to supply this country and its major allies at reduced rates of oil consumption, but military impediments would be inhibitive.

*Supply Allies alone*

This country and 15 of the world's largest oil consumers (including most NATO nations and Japan) signed an agreement on an International Energy Program late in 1974. In essence, that pact promotes "secure oil supplies on reasonable and equitable terms" by developing standby stocks within each member state, restraining demand, and allocating imports among members so as to ease shortages during "oil supply emergencies." 36

The stipulated share of petroleum resources would avert or attenuate crises caused by embargoes, if no complications arose. However, OPEC conceivably could use selective boycotts against our foremost allies to drive a wedge between them and the United States. Should that contingency occur, neither NATO nor Japan could seize sufficient oil supplies to satisfy minimal import requirements.

The United States could choose to assist. If so, sanctions against NATO would demand direct military operations by this country in the Middle East, since allied capabilities are inadequate, and no other area could satisfy Europe's oil import requirements. Should OPEC's embargo strike solely at Japan, U.S. assistance might be confined to material support, as suggested earlier. Conversely, American and Japanese Armed Forces could be committed in any one of several oil producing areas whose output is sufficient to satisfy current needs

## OUTLYING OBJECTIVES

Some potential areas of operation, such as Venezuela and Nigeria are isolated. Outsiders would find it difficult or impossible to oppose U.S. actions. No intervening obstacles impede passage from those oil producers to the United States or its principal allies.

Not so in other locales. Several OPEC countries adjoin in the Middle East, where coordinated military actions by members and/or sympathizers (especially the Soviet Union) are conceivable. Blocking positions well beyond the oilfields might prove essential. At the very least, U.S. units would need to oversee the Strait of Hormuz, probably from both shores--a sensitive proposition, should the Shah resist. Japan might have to hold Malacca. If Saudi areas were occupied, U.S. forces might need to control Riyadh, a possible hotbed of resistance. Extensive perimeters thus could be expected.

TABLE 7.—UNITED STATES, ALLIED OIL IMPORTS COMPARED WITH OPEC PRODUCTION

| OPEC producing regions and states | Total 1973 crude and refined exports To: [1] (MMb/d) | | | Current normal crude production rate [2] (MMb/d) | Crude oil reserves [3] (billion barrels) | Approximate number of years production at normal rate |
|---|---|---|---|---|---|---|
| | United States | Western Europe | Japan | | | |
| Middle East: | | | | | | |
| Saudi Arabia [4] | 0.590 | 4.000 | 1.240 | 8.6 | 164.5 | 53 |
| Iran | .420 | 1.900 | 1.730 | 6.1 | 66.0 | 30 |
| Kuwait [4] | .160 | 1.750 | .540 | 3.5 | 72.8 | 56 |
| Iraq | .050 | 1.220 | negl | 2.0 | 35.0 | 50 |
| United Arab Amirates [5] | .160 | .600 | .430 | 1.9 | 33.9 | 55 |
| Qatar | negl | .400 | nil | .5 | 6.0 | 32 |
| Oman [6] | NA | NA | NA | .3 | 6.0 | 54 |
| Bahrain [6] | NA | NA | NA | .1 | .3 | 12 |
| Africa: | | | | | | |
| Libya | .350 | 1.590 | .020 | 3.3 | 26.6 | 22 |
| Algeria | .140 | .670 | nil | 1.0 | 7.7 | 23 |
| Nigeria | .550 | 1.130 | .100 | 2.3 | 20.9 | 25 |
| Gabon | NA | NA | NA | .2 | 1.8 | 24 |
| Latin America: | | | | | | |
| Venezuela | 1.840 | .440 | .010 | 3.0 | 15.0 | 14 |
| Equador | .057 | nil | nil | .2 | 2.5 | 35 |
| Indonesia | .250 | negl | .940 | 1.4 | 15.0 | 29 |
| United States/allies total imports all sources, 1973 | 6.2 | 15.2 | 5.4 | | | |
| United States/allies domestic production, 1973 | 11.1 | .2 | negl | | | |
| United States/allies total consumption, 1973 | 17.3 | 15.4 | 5.4 | | | |

Note: MMb/d=Million barrels per day; negl=Negligible; nil=None; NA=Not available.

[1] 1973 is used as a representative, or normal, year to show export patterns. Data for 1974 was distorted by (1) the impact of the Arab oil embargo and production cutbacks of October 1973-March 1974 (full effects of the Arab action were not felt until December 1973); (2) the world oil surplus caused by conservation programs in industrialized countries; (3) oil production cutbacks instituted by producing states to meet lower world demands; (4) disrupted trade patterns caused by a tanker glut; and (5) further unsettling of the world market caused by the pricing changes which came into effect in January 1974 and December 1974. Data taken from: International Economic Report of the President, Washington, U.S. Government Printing Office, March 1975. p. 154.

[2] Normal production rate is maximum production capacity under current technological limitations, without political restrictions. For example, Kuwait's production rate for 1974 was about 2.2 MMb/d and Libya's was about 1.7 MMb/d. Both states have reduced their production for political reasons. Saudi Arabia has a potential rate of about 20.0 MMb/d, but only after extensive and expensive technological improvements.

[3] Reserve figures vary greatly from source to source. For example, DeGolyer and MacNaughton's Twentieth Century Petroleum Statistics lists Saudi reserves at 96.9 billion barrels. The International Petroleum Encyclopedia lists 132 billion barrels. Statistics in this study were taken from: Oil and Gas Journal, Dec. 30, 1974, p. 108-109. They do not include tar sands, heavy oils, or oil shales.

[4] Neutral zone production divided between Kuwait and Saudi Arabia.

[5] Of the 7 member states of the United Arab Amirates, Abu Dhabi, Dubai, and Sharjah are oil producers. The latter began production in 1974.

[6] Not an OPEC member, but an OPEC sympathizer.

TABLE 8.—OPEC PRODUCTION BY REGIONS AND MAJOR OIL FIELDS

| | Million barrels per day | Percent offshore |
|---|---|---|
| Middle East: | | |
| Iran: | | |
| Offshore | 0.3 | |
| Onshore | 5.8 | |
| Total | 6.1 | 0.5 |
| Saudi Arabia: | | |
| All Saudi onshore: | | |
| Ghawar | 4.7 | 0 |
| Abqaiq | .9 | 0 |
| Harmaliyah | .1 | 0 |
| Khursaniyah | .1 | 0 |
| Qatif | .1 | 0 |
| Dammam, Fadhili, Khurais | .1 | 0 |
| Total | 6.0 | 0 |

TABLE 8.—OPEC PRODUCTION BY REGIONS AND MAJOR OIL FIELDS—Continued

| | Million barrels per day | Percent offshore |
|---|---|---|
| Middle East—Continued | | |
| Saudi coastal: | | |
| Safaniyah | 1.0 | 60.0 |
| Zuluf | .2 | 100.0 |
| Marjan | <.1 | 100.0 |
| Khursaniyah | .1 | 0 |
| Abu Hadriya, Fadhili, Qatif, Dammam | .2 | 0 |
| Abqaiq | .9 | 0 |
| Berri | .8 | 92.0 |
| Total | 3.3 | 58.0 |
| South Saudi onshore: | | |
| Ghawar | 4.7 | 0 |
| Abqaiq | .9 | 0 |
| Qatif, Dammam | .1 | 0 |
| Total | 5.7 | 0 |
| Saudi core: | | |
| Ghawar | 4.7 | 0 |
| Abqaiq | .9 | 0 |
| Berri | .6 | 92.0 |
| Qatif, Dammam | .1 | 0 |
| Total | 6.5 | 11.0 |
| Kuwait [1] | 3.5 | 19.0 |
| Bahrain [2] | .07 | 0 |
| Qatar | .5 | 40.0 |
| United Arab Emirates: | | |
| Abu Dhabi: | | |
| Murban, Bu Hasa | 1.2 | 0 |
| Mubarras, Umm Shaif, Zakum | .5 | 100.0 |
| Dubai | .2 | 100.0 |
| Sharjah | .05 | 0 |
| Total | 1.9 | 38.0 |
| Oman [3] | .3 | 0 |
| Africa: | | |
| Algeria: | | |
| Hassi Massoud (Trias Basin, north complex) | .7 | |
| Edjeleh (Polignac Basin, south complex) | .2 | |
| Other areas | .1 | |
| Total | 1.0 | 0 |
| Libya: | | |
| Sirte Basin | 3.1 | 0 |
| Sarir | .2 | 0 |
| Total | 3.3 | 0 |
| Nigeria | 2.3 | 27.0 |
| South America: | | |
| Venezuela: | | |
| Zulia State (Maracaibo region) | 2.5 | 85.0 |
| Anzoategui/Monagas States (eastern onshore) | .5 | 0 |
| Guarico/Barinas (central onshore) | .06 | 0 |
| Total | 3.0 | 75.0 |
| Southeast Asia: | | |
| Indonesia: | | |
| Sumatra | 1.0 | 0 |
| Java | .2 | (4) |
| Kalimantan | .1 | (4) |
| Others | .1 | |
| Total | 1.4 | 17.0 |

[1] Includes Khafji and Hout offshore in the Neutral Zone.
[2] Not an OPEC member, but an OPEC sympathizer.
[3] None.

Note: All figures are approximate. Sums of subtotals do not coincide with associated grand totals where fields are included under more than 1 heading.

Sources: Oil and Gas Journal, Dec. 30, 1974, May 6, 1974; International Petroleum Encyclopedia, Tulsa, Petroleum Publishing Co., 1974. Data on Berri fields derived from Aramco Houston Office on May 22, 1975.



TABLE 9.—SELECTED REFINERY STATISTICS

[In millions of barrels per day]

| Region or country | Domestic consumption 1973 [1] | Refinery capacity 1974 [2] | Refinery capacity shortage/excess |
|---|---|---|---|
| United States | 17.3 | 14.8 | −2.5 |
| Japan | 5.4 | 5.1 | −.3 |
| Western Europe | 15.4 | 18.7 | +3.3 |
| Venezuela | .2 | 1.5 | +1.3 |
| Caribbean | .1 | 1.9 | +1.8 |
| Netherlands Antilles | (3) | (.9) | |
| Trinidad and Tobago | (3) | (.5) | |
| Bahamas | (3) | (.5) | |
| Middle East | .8 | 2.4 | +1.6 |
| Kuwait | (.1) | (.6) | |
| Saudi Arabia | (.3) | (.7) | |
| Bahrain | (3) | (.3) | |
| Iran | (.4) | (.8) | |
| Africa | .1 | 2.0 | +1.9 |
| Algeria | (3) | (.1) | |
| Libya | (3) | (3) | |
| Nigeria | (3) | (3) | |

[1] Puerto Rico and Virgin Islands included in U.S. total.
[2] Capacities shown above reflect full utilization, and discount "sweet"/"sour" relationships, which could play important roles in contingency planning. Most U.S. refineries, for example, are designed to process "sweet" oil. Venezuela, Saudi Arabia, and Iran produce "sour" oil in the main, Kuwait is more or less "neutral." We could refine "sour" and "neutral" shipments in emergency, but at reduced efficiency and considerable risk to facilities. Converting equipment to handle "sour" and "neutral" oil on a routine basis would be costly and time-consuming. Other countries, most notably in Europe and the Caribbean, would have to process such products for the United States if we seized oil fields in "sour" oil areas, if they failed to do so, we would face serious problems. See glossary for "sweet" and "sour" oil.
[3] Less than 100,000 barrels per day.

Sources: Primarily the International Petroleum Encyclopedia, 1974. Tulsa, Oklahoma, Petroleum Publishing Co., 1974, and the International Economic Report to the President, Washington, U.S. Government Printing Office, March 1975, p. 154

TABLE 10.—SAMPLE OBJECTIVE ARLAS: RELATED TO REQUIREMENTS

[Millions of barrels per day]

| Selected combinations [1] | Crude oil [2] imports, 1973 | Normal crude oil production |
|---|---|---|
| Supply United States | 6.2 | |
| Maracaibo, Nigeria | | 4.8 |
| Maracaibo, Libya less Sarir | | 5.6 |
| Iran | | 6.1 |
| 44 percent Iran, Kuwait | | 6.2 |
| Saudi Coastal, Kuwait | | 6.8 |
| All Saudi Onshore | | 6.0 |
| South Saudi Onshore, Qatar, Bahrain | | 6.3 |
| Saudi Core | | 6.5 |
| Supply United States plus Japan | 11.6 | |
| Maracaibo, Nigeria (United States) | | 10.5 |
| South Saudi Onshore (Japan) | | |
| Maracaibo, Libya less Sarir (United States) | | 11.3 |
| South Saudi Onshore (Japan) | | |
| Saudi Core (United States) | | 11.4 |
| Indonesia, Kuwait (Japan) | | |
| Supply United States plus NATO Europe | 21.4 | |
| All Saudi, Kuwait, 82 percent Iran (United States) | | 21.4 |
| Algeria, Libya (NATO) | | |
| All Saudi, Kuwait, Bahrain to Oman, 55 percent Iran (United States) | | 21.4 |
| Algeria, Libya (NATO) | | |
| Supply United States plus Europe/Japan | 26.8 | |
| All Persian Gulf less Iraq (United States) | | 26.6 |
| North Africa (NATO) | | |
| Indonesia (Japan) | | |

[1] See table 8 for OPEC production by regions and major oil fields.
[2] U.S. petroleum imports could be cut in emergency, but this table reflects full demands to compensate for OPEC sabotage efforts, which could substantially reduce production in objective areas. Note 1, table, 7 explains why 1973 was used as a base.



TABLE 11.—KEY PRODUCING AREAS: COMPARATIVE CHARACTERISTICS

GENERAL GEOGRAPHY

| | Terrain | Climate | Vegetation | Population | Size of area [1] | Distance from United States [2] |
|---|---|---|---|---|---|---|
| Middle East: | | | | | | |
| Iran | Mountains | Arid | Scrub | Sparse | 300×100 | 6,650 |
| Iraq | Hills | do | do | do | 500×100 | 6,200 |
| Kuwait | Plain | do | Desert | do | 100×50 | 6,700 |
| Saudi Arabia | do | do | do | do | 300×100 | 6,950 |
| Bahrain | Island | do | do | do | 20×10 | 7,000 |
| Qatar | Plain | do | Steppe | do | 120×35 | 7,100 |
| United Arab Emirates | do | do | Desert | do | 100×25 | 7,200 |
| Oman | Hills | do | do | do | 175×25 | 7,450 |
| Africa: | | | | | | |
| Algeria | Rough | do | Sparse | do | 650×200 | 4,300 |
| Libya | Plain | do | do | do | 350×250 | 5,300 |
| Nigeria | Delta | Wet | Rain forest | Dense | 220×100 | 5,700 |
| Latin America: Maracaibo | Lake | Moist | do | Moderate | 100×50 | 1,850 |
| Southeast Asia: Indonesia | Plain | Tropical | do | do | Fields on 5 islands | 10,600 |

[1] Size of area indicates maximum length and width in statute miles.
[2] Airline distance from Norfolk, Va. to: Abadan, Iran; Kirkuk, Iraq; Dhahran, Saudi Arabia; Kuwait City, Bahrain; Umm Bab, Qatar; Abu Dhabi, UAA; Muscat, Oman; Algiers, Algeria; Sirte, Libya; Port Harcourt, Nigeria; Maracaibo, Venezuela; Djakarta, Indonesia.

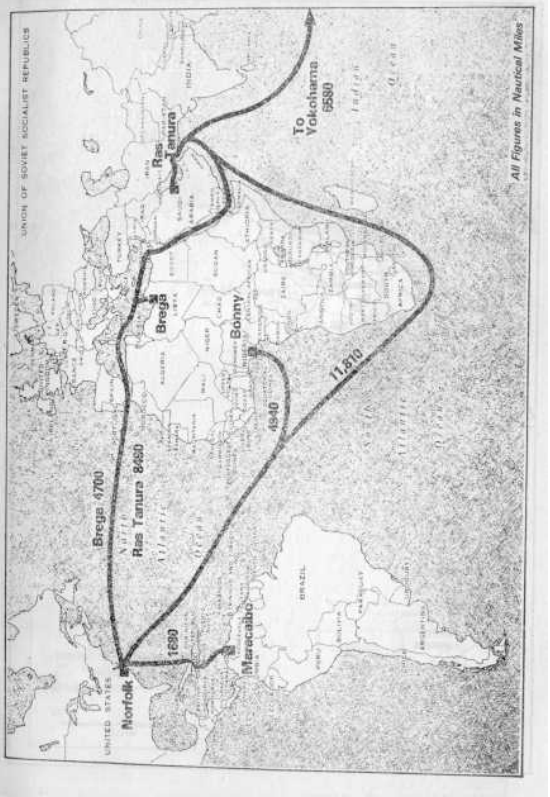
PETROLEUM PRODUCTION PLANT

| | Oil fields [1] | Active oil wells [1] | Shut-in oil wells [1] | Pipeline mileage [2] | Refinery capacity [3] | Oil port |
|---|---|---|---|---|---|---|
| Middle East: | | | | | | |
| Iran | 29 | 378 | 12 | 795 | 0.789 | 5 |
| Iraq | 8+ | 156 | 234 | 2,466 | .169 | 2 |
| Kuwait | 8 | 692 | Unknown | 451 | .566 | 3 |
| Saudi Arabia | 24 | 670 | 134 | 2,655 | .690 | 3 |
| Bahrain | 1 | 211 | 33 | Unknown | .250 | 1 |
| Qatar | 4 | 81 | 9 | 311 | .001 | 2 |
| United Arab Emirates | 11 | 208 | 36 | 390 | 0 | 3 |
| Oman | 4 | 160 | 30 | Unknown | 0 | 1 |
| Africa: | | | | | | |
| Algeria | 23+ | 826 | 294 | 2,522 | .115 | 2 |
| Libya | 39 | 979 | 507 | 2,250 | .016 | 5 |
| Nigeria | 98+ | 1,088 | 103 | 328 | .060 | 5 |
| Latin America: Venezuela [4] | 73+ | 12,379 | 7,176 | 1,951 | 1.532 | 22 |
| Southeast Asia: Indonesia | 77+ | 2,707 | 6,788 | 361 | .428 | 5 |

[1] Oil and Gas Journal, Dec. 30, 1974, pp. 129-148.
[2] Major trunk lines only. OPEC Annual Statistics, 1973, pp. 99-105.
[3] Refinery capacities in millions of barrels daily. International Economic Report of the President, March 1975, p. 154; American Petroleum Institute, Annual Statistical Review, May 1975, pp. 65-66.
[4] Includes all of Venezuela. Most statistics do not separate Maracaibo.

Map 2.

## SEA ROUTES TO SELECTED OIL FIELDS



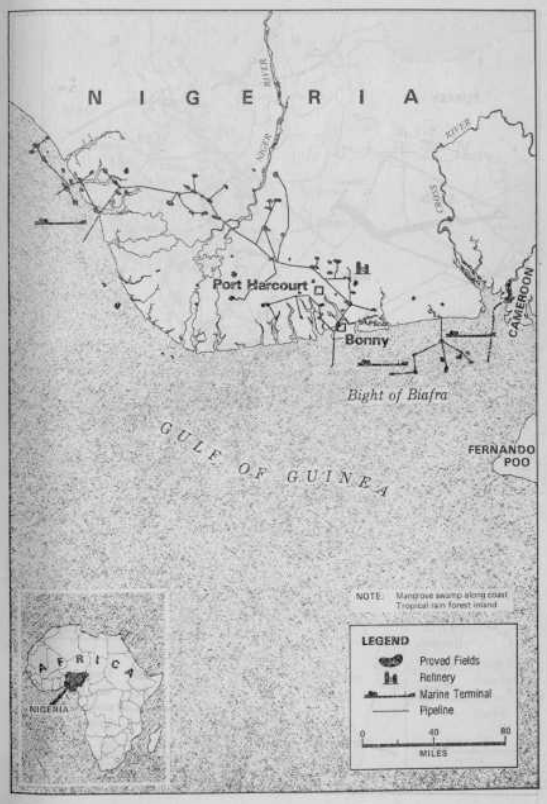
Map 3.

## MARACAIBO OIL FIELDS



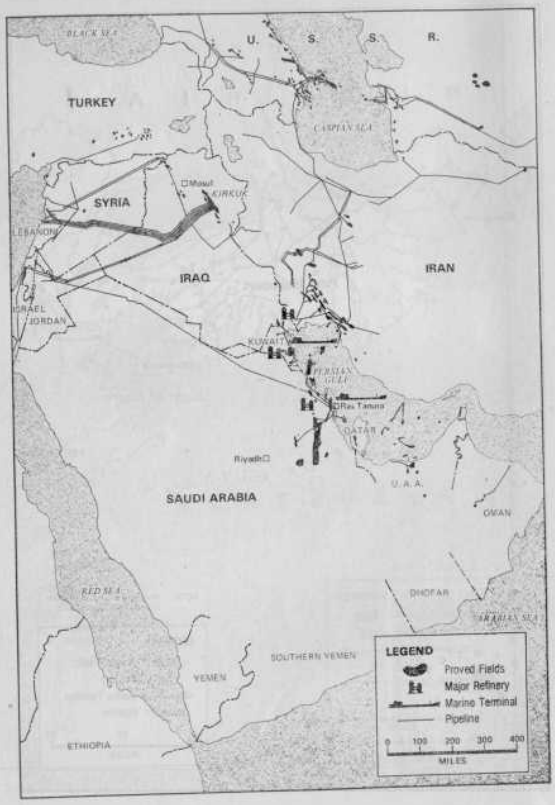

Map 4.

## NIGERIAN OIL FIELDS



Map 5.

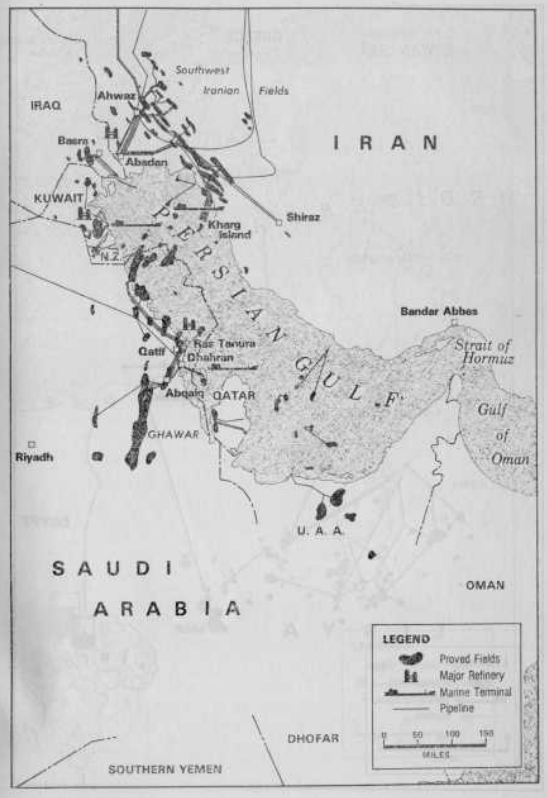
## MIDDLE EAST OIL FIELDS



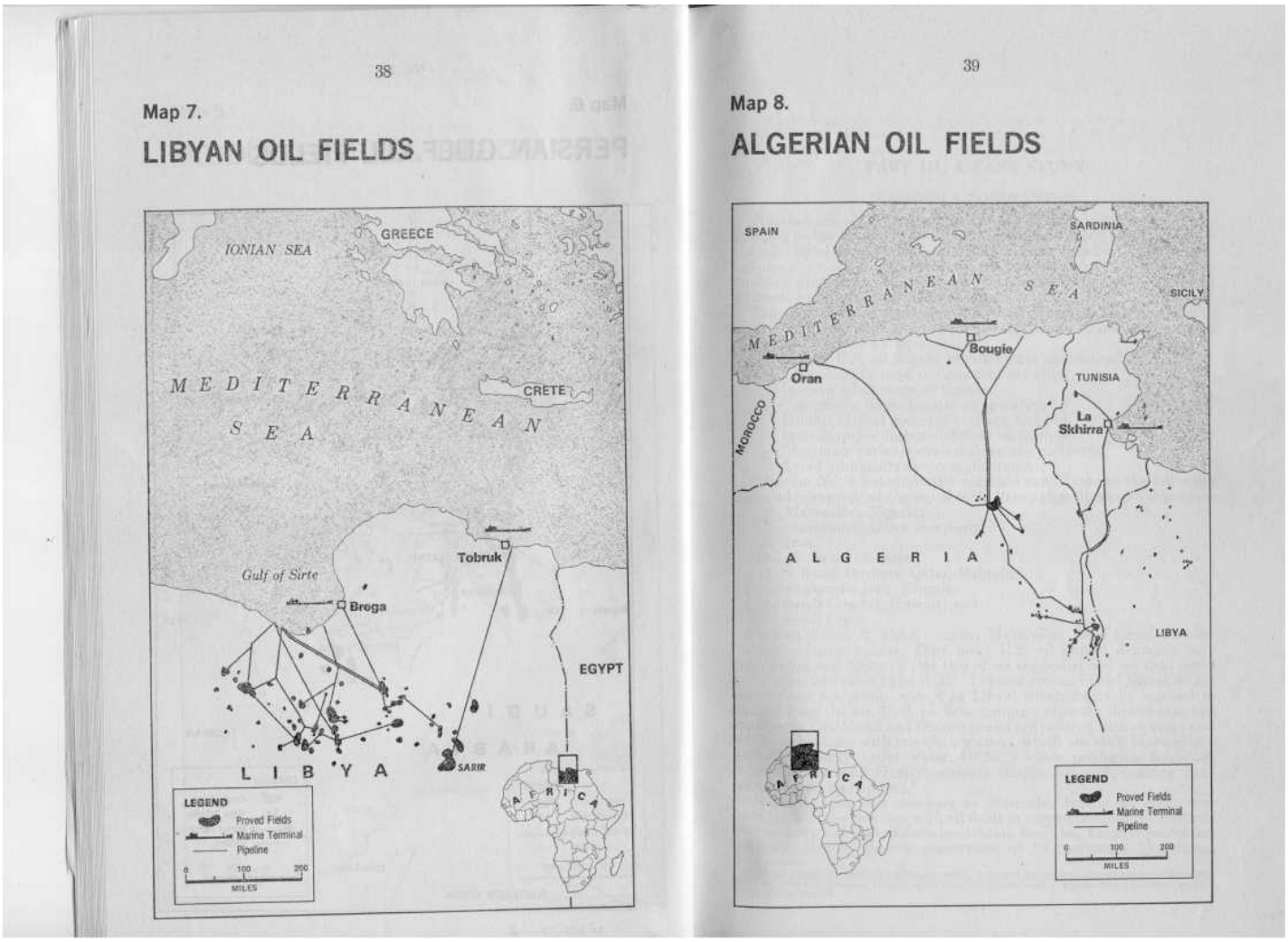



Map 6.

## PERSIAN GULF OIL FIELDS




56-520—75——4

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***Footnotes to Part I***

1. MacDonald, David R., "Report of Investigation of Effect of Petroleum Imports and Petroleum Products on the National Security Pursuant to sec. 232 of the Trade Expansion Act, as amended." Department of the Treasury, Jan. 13, 1975, annex E. (no pagination).

2. Testimony of William Simon before the Permanent Subcommittee on Investigations of the Senate Committee on Government Operations, Jan. 25 1974, printed in: U.S. Senate. Committee on Interior and Insular Affairs. "Current Analysis of Petroleum Supplies for 1st Quarter 1974." Committee print, serial No. 93-30 (92-65), 93d Cong., 2d Sess. Washington, U.S. Government Printing Office, 1974, p. 1. The Dec. 15, 1973 issue of the *National Journal* reported that the Cabinet-level Emergency Energy Action Group had decided on Nov. 19, 1973, not to disclose the sources of imported oil during the embargo to protect countries "leaking" oil to the United States. A Department of Commerce report released on Apr. 8 1974 (*Washington Post*, Apr. 9, 1974: A-l2) confirmed that oil from Arab countries continued to flow to the United States despite the embargo.

3. 'The Arab oil embargo was only one of several factors that contributed to U.S. oil shortages in the winter of 1973-74, but it was the most conspicuous. Mark, Clyde, "The Arab Oil Embargo and U.S. Oil Shortages: October 1973 to March 1974." Washington, Congressional Research Service, May 3, 1974, (press release of Congressman Dante Fascell, May 27, 1974). 16 pp.

4. "Conference of the Sovereigns and Heads of State of the OPEC Member Countries: Solemn Declaration." *New York Times*, Apr. 1, 1975, p. 18C.

5. Canada, which presently supplies 17 percent of all U.S. petroleum imports, plans to cut off that source-shortly, since it needs more oil itself. See statement of Donald S. MacDonald, Canadian Minister of Energy, to the House of Commons, Nov. 22, 1974. Printed in U.S. Congress. House. "Energy From U.S. and Canadian Tar Sands: Technical, Environmental, Economic, Legislative, and Policy Aspects." Report prepared for the Subcommittee on Energy of the Committee on Science and Astronautics. 93d Cong., 2d sess. Washington, U.S. Government Printing Office, December 1974, pp. 87-90.

6. U.S. stocks of crude oil for civilian use totaled 225 million barrels in October 1974. Imports that month were 3.9 million barrels a day. Reserves would last 65 days if all imports ceased. Monthly Energy Review, Federal Energy Administration, National Energy Information Center, December 1974.

7. Cooper, Bert H., "Oil Shortages and the U.S. Armed Forces." Washington, Congressional Research Service, Apr. 16, 1974, p. 24.

8. Fact Sheet, The President's State of the Union message. Washington, Office of the White House Press Secretary, Jan. 15, 1975. Question and answer section.

9. Kash, Don E., White, Irvin L., et al., "Energy Under the Oceans: A Technological Assessment of Outer-Continental Shelf Oil and Gas Operations." Norman, University of Oklahoma Press, 1973, 378 pp.

10. MacDonald, David R., "Report of Investigation of Effect of Petroleum Imports and Petroleum Products on the National Security." Cover Memo, p. 2.

11. Cooper, Bert H., "Oil Shortages and the U.S. Armed Forces," p. 12.

12. For a representative sample, see U.S. Congress. House. Hearings Before the Subcommittee on Foreign Economic Policy of the Foreign Affairs Committee on Foreign Policy Implications of the Energy Crises. Washington, U.S. Govt. Print. Off., 1972, pp. 179-181.

13 Highly industrialized Japan is even more dependent on foreign oil today than it was during World War II, when allied embargoes and blockades effectively "strangled" that country. For a detailed account see Cohen, Jerome B.. "Japan's Economy in War and Reconstruction," Minneapolis, University of Minnesota Press, 1949. 545 pp.

14 Charles J. DiBono, then the President's consultant on energy matters, believed that an extended embargo "might well be in our long-run best interest", because it would "stimulate intense public efforts to increase supply and reduce demand." "Calling the Oil Bluff," *The Wall Street Journal*, Oct. 16, 1973, p. 22. Some noted journalists concur. Anthony Lewis, for example, advocates adjusting "to the reality of scarcer and more expensive energy", and admonishes that "far from encouraging * * * * adjustment, dreams of gunboat diplomacy will foster the dangerous illusion that * * * linear growth based on cheap energy can go on forever." "Thinking the Unthinkable," *New York Times*, Dec. 30, 1974, p. 30.

15. Estimating the economic and social impact of an oil embargo is an inexact endeavor in which neither optimists nor pessimists can prove their case. The Federation of American Scientists, speaking only of Arab input, indicates that "cutoffs could cause * * * [a] world-wide depression." "The Arab Oil Boycott: A Blessing in I)isguise?" F.A.S. Public Interest Report, Special Issue on Oil, January 1974, p. 1. By way of contrast, the Federal Energy Administration finds "that we know little about the long run implications of the [1973] embargo." much less any future boycott. "The Economic Impact of the Oil Embargo on The American Economy." Washington, Federal Energy Administration, Aug. 8, 1974, p. 12.

16. Subsequent sections address risk-versus-gain ratios.

17. Bowett, D. W., "Self-Defense in International Law," Manchester (United Kingdom), Manchester University Press, 1958, p. 107.

18. Ibid. "Essential rights" are widely construed to include political independence, territorial integrity, security on the high seas, prerogatives to protect the state's citizens abroad, and the defense of economic interests. Bowett covers each in turn, pp. 29-114. See especially pp. 106-114 on economic interests.

19. Several definitions are found in Thomas, A. V. W. and Thomas A. J., Jr.; "The Concept of Aggression in International Law." Dallas, Tex., Southern Methodist University Press, 1972, pp. 90-92.

20. United Nations General Assembly Resolution 3281 (XXIX), Charter of Economic Rights and Duties of States, ch. II, art. 2, Jan. 15, 1975.

21 Ibid., ch. IV, art. 32.

22. United Nations General Assembly Resolution 3314 (XXIX), Definition of Aggression, Annex, art. 2 and 5, Dec. 14, 1974.

23 "The principle of self-preservation * * * is so fundamental that no system or law can possibly ignore it." Whiteman, Marjorie, Digest of International Law, Vol. 5, Washington, U.S. Govt. Print. Off., 1965, p. 975. Corroborating views are summarized in Stowell, Ellery C., "Intervention in International Law," John Byrne & Co., 1921 pp. 393-397.

24. "When the delict does not involve force or the threat of force, it would * * * seem arbitrary to deny the defending state the right to use force in the defense of its rights as a matter of fixed principle." Whiteman, Marjorie, Digest of International Law, Vol. 12, 1971, p. 26.

25. Blockades and embargoes both seek to impose economic sanctions, but there are sharp distinctions. International law is specific regarding blockades, which are backed up by force or threats of force. Laws are inconclusive concerning the use of embargoes as coercive instruments. The quotation is from President Madison's War Message to the Congress on June 1, 1812.

26. To say that Japan's great offensive in December 1941 was generated exclusively by economic concerns (including embargoes) would grossly oversimplify the issues. However, economic warfare played a salient gart, and the illustration provides some insight.

27. The Preamble to the Constitution, unlike the articles, is not legally binding, but it does state basic interests. Art. I, Sec. 8, for example, charges the Congress with particular responsibilities related to promoting the general welfare, but philosophy in the Preamble nonetheless alerts the President to that requirement in its broadest context.

28. Taft, William Howard, "Our Chief Magistrate and His Powers," New York, Columbia University Press, 1925, pp. 87 88, 91, citing In re Neagle (1899, 135 U.S. 1; U.S. v. Logan (1892), 144 U.S. 263.

29. The Congress has declared war only five times: the War of 1812, the Mexican War, the Spanish-American War, World War I, and World War II. Five congressional joint resolutions have authorized the use of U.S. armed forces overseas since 1945: Formosa resolution, Public Law 84-4, 11.3. Res. 159, approved Jan. 29, 1955; Middle East resolution, Public Law 85-7, 11.3. Res. 117, approved Mar. 9, 1957; Cuban resolution, Public Law 87-733, S.J. Res. 230, approved Oct. 3. 1962; Berlin resolution, House Con. Res. 570, concurred In on Oct. 10, 1962; Gulf of Tonkin resolution, Public Law 88-408, 11.3. Res. 1145, approved Aug. 10, 1964. In addition, U.S. Armed Forces have been committed many times without congressional concurrence of any kind.

30. An amendment to the Defense Appropriations Act of 1970 (Public Law 91-171, Dec. 29, 1969), for example, stipulates that "none of the funds appropriated by this act shall be used to finance the Introduction of American ground combat troops into Laos or Thailand." Public Law 91-652 applied similar proscriptions to Cambodia on Jan. 5, 1971. Public Law 93-50 extended such restrictions to all of Indochina and adjacent waters on July 1, 1973.

31. Source materials on this subject cover both theory and practice. See for example Lippmann, Walter, "Public Opinion" New York Harcourt, Brace & Co., 1922. 427 pp.; and Harris, Louis, "The Anguish of Change," New fork, W. W. Norton & Co., 1973, 306 pp.

32. Stalin, for one, found supplicatlons unpersuasive, unless backed by force of arms, as evidenced by his disparaging remark to Pierre Laval in May 1935; "The Pope! How many divisions has he got?"

33. Fifty-eight percent of the American people in April 1975 disapproved hypothetical proposals to seize Arab oilfields, according to a Harris survey. An even quarter then assented. Those figures could shift suddenly if an airtight embargo struck. Harris, Louis, "Oil or Israel?" New York Times Magazine, Apr. 6, 1975, p. 34.

34. For recent discussions see Russett, Bruce, "The American's Retreat From World Power," Political Science Quarterly, Spring 1975, pp. 1-21; and Roskin, Michael, "From Pearl Harbor to Vietnam: Shifting Generational Paradigms and Foreign Policy," Political Science Quarterly, Fall 1974, pp. 563-588.

35. Tucker, Robert W. "Oil: The Issue of American Intervention," p. 28. President Ford and Secretary Kissinger lean toward support for allies in their public statements. Both speak of "strangulation" that affects the "entire industrialized world," not just the United States.

36. Treaties and Other International Agreements of the United States of America, 1776-1949. Compiled by Charles I. Bevans. vol. 4, Multilateral, 1946-49. Washington, U.S. Govt. Print. Off., 1970, pp. 828-831.

37. United States Treaties and Other International Agreements. Vol. 11, pt. 2, 1960. Washington, U.S. Govt. Print. Off., 1961, pp. 1632-1635.

38. OPEC would abridge its financial assets and freedom of action simply by invoking an embargo, but. would control the degree and duration of its own duress. If U.S. troops occupied oilfields, this country could deny them the luxury of choice.

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***Footnotes to Part II***

1. Capabilities constitute the ability of countries or coalitions to execute specific courses of action at specific times and places. Fundamental components can be quantified and compared objectively--so many tanks, ships, and planes. Time, space, climate, and terrain are also easy to calculate. Best of all, capabilities rarely are subject to rapid change.

Intentions deal with the determination of countries or coalitions to use their capabilities in specific ways at specific times and places. Interests, objectives, policies, principles, and commitments all play important roles. National will is the integrating factor. Intentions are very tricky to deal with, since they are subjective states of mind.

Still, some feel for friendly capabilities and determination plus enemy capabilities and intentions is imperative for decislonmakers who hope to design sound strategies.

2. "Conference of the Sovereigns and Heads of State of the OPEC Member Countries Solemn Declaration." New York Times, Apr. 1, 1975, p. 18C.

3. OPEC's abilities to interfere with air strikes, parachute assaults, and airmobile operations could be increased quickly and effectively if outsiders supplied large stocks of antiaircraft weapons, especially small, mobile surface-to-air missiles such as SA-6 and SA-7, which are easily concealed. No such support is now evident.

4. Dr. Alvin J. Cottrell, of the Georgetown Institute for Strategic and International Studies, published the following evaluation after a recent inspection tour in Iran and interview with the Shah. "[One] point * * often is overlooked in superficial assessments of Iran's current military power and its allegedly grandiose ambitions. The Shah has made an investment in the sophisticated instruments of military power. but the investment is likely to bear fruit only some years in the future. The leadtime is conditioned not only by stretched out delivery schedules * * * but also by the infrastructure and training requirements to absorb [his] purchases." "Iran: Diplomacy in a Regional and Global Context," Washington (Privately published), 1975, p. 12.

5. Admiral Elino R. Zumwalt, Jr., when he was Chief of Naval Operations, identified the Strait of Hormua as a critical choke point which is "relatively easy to mine or block", and concluded that "there is little the United States could do militarily to forestall this possibility." U.S. Congress. Senate. 'Oil and Gas Imports Issues." Hearings before the Committee on Interior and Insular Affairs, Pt. 3, 93d Cong., 1st Sess.,Washington. U.S. Govt. Print. Off., 1973, pp. 764-765.

6. Except Iraq, whcse petroleum is pumped to Mediterranean ports.

7. Accounts of those exploits are found in Peniakoff, Vladimir, "Popski's Private Army," New York, Crowell, 1950, 369 pp.; Cowles, Virginia, "The Phantom Major: the Story of David Stirling and the S.A.S.Regiment. Lonlon, Collins. 1958. 320 pp.; and Lawrence, T. E., "Seven Pillars of Wisdom: A Triumph,"
Garden City, New York, 1966, 622 pp.

8. Letters fiorn readers: "Oil and Force," Commentary, April 1975, p. 15. Quotes a petroleum engineer; and Mosley, Leonard, "Power Play: Oil in Middle East," New York, Random House, 1973, pp. 137-141.

9. Venezuelan insurgents, who short-circuited four offshore transformers in 1962, shut down 600 wells for a short time. Professional planning would have produced superior results. "The Sovereign Puppet," Time, Nov. 9, 1962, p. 41.

10. Borchgrave, Arnaud de,' 'Intervention Wouldn't Work," Newsweek, Mar. 31, 1975, p. 48.

The Arabian American Oil Co. (ARAMCO) operates most petroleum concessions in Saudi Arabia.

11. U.S. forces landed in Normandy on June 6, 1944. Cherbourg fell on June 29. Before withdrawing, German defenders completed what one source called "the most complete, intensive, and best-planned demolition in history." All basins were blocked by sunken ships. 20,000 cubic yards of masonry were blown into berths, Ninety-five percent of the deep-draft quays were destroyed. Breakwaters were cratered, cranes crumpled, power and heating plants destroyed. Wholesale mining was accomplished. Bridges and buildings were blasted along with clearance facilities. Serious problems were still experienced in October. Ruppenthal, Ronald G. "Logistical Support of the Armies". Vol. II, September 1944-May 1945. Washington, Office of the Chief of Military History, Department of the Army, 1959, pp.62-89.

12. Borchgrave, Arnaud de, Newsweek, March 31, 1975, p.48.

13. "Kuwait Threatens Oilfield Destruction Should U.S. Step In," New York Times, Jan. 10, 1974, p. 17.

14. The conflict spectrum is a continuum of hostilities that ranges from subcrisis confrontation to spasmodic nuclear war. Successive increases in scope or intensity constitute escalation. Levels of escalation are like the rungs of a ladder, which may be climbed in sequence or by skipping selected steps. Deescalation reverses that process. For a detailed discussion, see Kahn, Herman, "On Escalation: Metaphors and Scenarios" New York, Praeger, 1965, pp. 3-51.

15. Tucker, Robert W., "Oil: The Issue of American Intervention," pp. 26-27

16. Ignotus, "Seizing Arab Oil," p. 58.

17. Ravenal, Earl C., "The Oil-Grab Scenario," The New Republic, Jan. 18, 1975, p. 16.

18. Wren, Christopher, "Soviet Sees Military Blackmail by West Against Oil-Producing Countries," New York Times, Jan. 8, 1975, p. 2.

19. The U.S. Army has been cut in half since 1970. Air Force and Navy personnel strengths have been cut by about a third. The intent was to constitute smaller forces which modernization measures would endow with greater capabilities than their predecessors. However, retraction began well before refurbishment could take place. Size, therefore, was reduced without concomitant improvements in combat power. Collins, John M. "Defense Trends in the United States, 1952-1973." Washington, Congressional Research Service, May 14, 1974, pp. 80-83.

20. William H. Kintner and Robert L. Pfaltzgraff, Jr. spelled out three possible Soviet foreign policies in a pamphlet entitled "Soviet Military Trends: Implications for U.S. Security," Washington, American Enterprise Institute, 1971, pp. 9-12. A basic policy of condominium, which dominated the 1960's after the Cuban missile crisis, stressed "peaceful coexistence." It was (and is) paralleled in some areas by a policy of caution, predicated on Soviet reluctance to run serious risks, but reflecting greater willingness to stimulate rivalry that avoids compromising U.S. vital or compelling interests. A policy of opportunity would involve increased Soviet competition in arenas where U.S. interests are intense.

21. Data drawn from the following documents describe NATO reinforcement problems, but they are applicable. U.S. Congress. Senate. Hearings Before the Committee on Armed Services on fiscal year 1973 Authorization for Military Procurement [etc.]. Part 2. 92d Cong. 2d Sess. Washington, U.S. Govt. Print.
Off., 1972, pp. 658, 1069. Also U.S. Congress. House. Hearings Before the Special Subcommittee on North Atlantic Treaty Organization Commitments, Committee on Armed Services. 92d Cong., 1st and 2d Sess.Washington, U.S. Govt. Print. Off., 1972, pp. 13006-13008.

22 The approximate combat radius of Mig-21s is 350 miles; Mig-255 700 miles; SU-7s 200-300 miles. An extended review of Soviet capabilities in the Persian Gulf area is contained in Blechman, Barry M. and Kuzmack, Arnold M., "Oil and National Security," Naval War College Review, May-June 1974, pp. 10-13.

23 A widely-quoted source states that "the Montreux Convention * * * establishes freedom of air passage for the Russians through a North-South corridor. The Soviets thus [have] no need to ask for authority to overfly Turkey--and according to the Convention they lard not even obliged to communicate the fact that they [wish] to do so." "Letters to the Editor," International Defense Review, April 1974, p. 240.

That assertion apparently is false. Art. 23 of the MontreUx Convention obliges Turkey to specify corridors for civil aircraft and permit them free passage, "provided that they give the Turkish Government, as regards occasional flights, a notification of three days." Military overifights are not addressed.

24. There is no consensus among authorities concerning just what it would take to "break" an embargo. OPEC's determination might actually be strengthened if this country seized a small fraction of that cartel's total production facilities, say enough to satisfy modest U.S. import requirements alone. Much greater pressures might have to be applied before OPEC'S members cracked.

25. The United States operates sufficient refineries to process domestic production, plus about half its imports. The residue amounts to roughly 3 million barrels a day. Venezuela could handle 1.2 million in the Maracaibo area. Facilities in the Dutch Antilles, Virgin Islands, Bahamas, Trinidad and Tobago, which are outside OPEC, could refine the remainder, if they chose to cooperate. International Economic Report of the President, Washington, U.S. Govt. Print. Off., March 1975, p. 154.

26. The Suez Canal reopened on June 5, 1975, but prospects are poor that it would remain active in event of an OPEC embargo.

27. Norfolk arbitrarily serves as a median point, although it is a naval base, not a petroleum port. Tankers actually discharge cargo at terminii from Texas to Massachusetts.

28. Admiral Thomas H. Moorer, former Chairman of the Joint Chiefs of Staff, and Admiral Elmo R. Zumwalt, Jr., for example, both warned that "it is dangerous for the United States now to deploy, in a bilateral confrontation with the Soviet Union in the Eastern Mediterranean, its fleet because the odds are that the fleet would be defeated in a conventional war." NBC radio and television program, "Meet the Press," June 30, 1974, (transcript, p. 6).

Other authonties assert that the foregoing case is overstated, but nearly all concede that the danger would be considerable.

29. One school of thought suggests that the Shah, recalling Soviet steps to unseat his father, would never traffic that way with the Kremlin. Others conclude he would have little choice if this country occupied Iranian oilflelds, his chief source of power.

30. Negotiations for the full nationalization of Aramco assets are presently in progress.

31 Production from fields at Qatif and Dammam would be surplus to our stated needs, but distribution and terminal facilities in those locations would have to be secured in any case

32. Petroleum tankers average about 15 knots per hour. That translates into 33 hours steaming time to cover 500 miles round trip.

33. Production in the Saudi core is 6.5 million barrels a day. Refinery capacity on site is 0.7 million. The United States could. handle 3.5 million over and above domestic production if "sweet" and "sour" problems were solved (see discussion with table 9). Roughly 1.7 million barrels a day would have to be refined elsewhere. Caribbean States (less Venezuela) might handle 1.1 million, while Europe processed the rest.

34. It seems inconceivable that this country would rescue allies that failed to help themselves. The remainder of this section therefore addresses combined efforts to offset embargoes directed against America and its maior allies, or exclusively against allies.

35. Forty percent of Safaniyah's 1 million barrels daily output is from offshore wells, total about 400,000 barrels.

36. France, Greece, Iceland, Norway, and Portugal are NATO's nonparticipants. U.S. Congress, Senate, International Energy Program, Hearings Before the Committee on Interior and insular Affairs on a Plan for Sharing Energy Imports in Time of Emergency and Cooperating on Other Energy Programs. 93 Congress, 2d session. Washington, U.S. Govt. Print. Off., 1975, 213 pp. See pp. 72-96 of that document for verbatim text of Agreement on an International Energy Program.