

ARAMCO AND TAPLINE IN INTERNATIONAL OIL

by

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Submitted in Partial Fulfillment of the Requirements

for the Degree of

Bachelor of Science

at the

Massachusetts Institute of Technology

(1953)

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100 Saint Marys Street
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May 25, 1953

Professor Joseph S. Newell
Secretary of the Faculty
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Professor Newell:

In accordance with the requirements for
graduation, I herewith submit a thesis entitled
"Aramco and Tapline in International Oil."

Sincerely yours,


 John W. Shine

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I. Introduction

In the whole of the Middle East, with all of its complex maze of petroleum concessions, there is only one company that is completely owned and controlled by American interests. This company is the Arabian American Oil Company (Aramco), which is a wholly-owned producing and refining subsidiary of four major American oil companies. From its meager beginning in the 1930's, it has had a startling growth. Since the end of the last war, it has become the single largest oil-producing company in the world. Aramco is located in Saudi Arabia, which is in one of the strategic areas of the world. Therefore, Aramco occupies a critical position in world affairs by virtue of the importance of petroleum products, the relative size of Aramco, and its location in a strategic area. In 1950, the parent companies of Aramco completed construction of the Trans-Arabian Pipe Line, which is the world's largest crude oil pipe line. It traverses the desert in Northern Saudi Arabia and connects the producing oil fields of Aramco to the port of Sidon on the Mediterranean Sea. This pipeline relieved sixty-five critically-needed tankers from the 7,000 mile round trip around the Arabian Peninsula. The purpose of this paper is to trace the development of Aramco and, also, to determine what effect, if any, Tapline would have on the distribution and price of the crude oil produced by Aramco.

(2.)

Since Tapline was not completed until December of 1950, it only left two years in which to judge the effect of Tapline. Because of the slowness of the various countries in reporting their trade statistics, figures were unavailable for the 1952 petroleum imports of most of Aramco's usual outlets. This effectively left only the 1951 figures for consideration. And the year 1951 turned out to be a rather poor criterion for any long-range trend. It was the first year of operation which implies that Aramco did not have sufficient time to adjust to its use even if normal times prevailed. Secondly, the petroleum trade pattern was still in a period of transition from the last war, and the Korean War started in July 1950, which undoubtedly had some effect on the usual trade pattern. Thirdly, and perhaps most important, was the Iranian nationalization of their petroleum resources and facilities. Iranian oil had previously been the largest Middle East oil producer. Therefore, when its petroleum was removed from the world trade, it left many deficit areas. Other companies consequently increased their production far above their normal operations in order to supply the deficit areas. This increase was far out of proportion with usual conditions and this was reflected in the world trade pattern. The combination of these various factors made the results obtained very inconclusive.

In regard to the price pattern, Tapline has had very little, if any, effect on the crude prices paid by the consumers. It has increased the profit of the parent companies

(3.)

because its operation costs are much lower than the tanker rates which still remain as the basic factor in determining the delivered price of the crude. The net result of the paper is that Tapline has had an inconclusive effect on the trade pattern and practically no effect upon the price structures. It will probably not have any appreciable effect until more pipe lines are constructed to the Mediterranean.

II. Saudi Arabia

If one individual had to be named that was most responsible for the current state of affairs on the Arabian Peninsula, the choice would unquestionably fall to the Saudi Arabian monarch, King Ibn Saud. He alone was responsible for uniting the various territories into a united country which, in turn, permitted him to award the petroleum concessions to American corporations. He maintains the harmony that has existed thus far between the Saudi Arabian government, the people, and Aramco. Without him, there are an unlimited number of possibilities of conditions that could now exist in Arabia and, probably, the entire Middle East. Perhaps the area would still be inhabited by various warring factions that could have greatly hindered the petroleum developments that have progressed so far. It is also possible that the area could have been put under the rule of some person or country that had aims that were opposed or not in accordance with those of the United States. Not only has he been very influential in petroleum affairs but, also, Middle East affairs that could have otherwise added some very sore headaches to a world that already has more than its share of trouble spots. He has been a staunch ally of the United States, and--in spite of his somewhat dictatorial form of government and many of the customs and practices that he encourages or tolerates, which are naturally repugnant to our way of life--the American public is very lucky that such a man as Ibn Saud has and does exist. Since

Aramco's history and Saudi Arabia's history have progressed concurrently and are largely dependent upon the life of Ibn Saud, a short review is necessary to completely understand the current situation of Aramco.

For many centuries, the basic unit of government on the Arabian Peninsula was the tribe with rule centered in the tribal chieftain. The country was divided into four more or less independent kingdoms, each of which maintained some measure of control over the tribes within their borders. This whole area was loosely a part of the old Ottoman Empire, and the tribal chieftains gave varying degrees of allegiance to the Sultan of Turkey. Ibn Saud was born in 1880 in Riyadh, where his father--at the time--was the ruler of Nejd, a large area in central Arabia. While Ibn Saud was a boy, his father's province was conquered by the Rashidi, forcing Ibn Saud's family into exile. When he was twenty-one (1901), Ibn Saud started his conquest which led to the present Saudi Arabian kingdom. He organized a small force and conquered Riyadh, driving out the Rashidi. After a series of campaigns against the Rashidi and the Turks, Ibn Saud became complete master of the Nejd by the end of 1906. Another campaign against the Turks on the eastern coast brought the large province of Hasa under his rule in 1913. During World War I, the British--through the exploits of the legendary Colonel Lawrence--aided one of Ibn Saud's rival chieftains to drive the Turks out of Hejaz, a west coast province containing the Holy cities of Mecca and Medina. By 1924, Ibn Saud had driven this British-sponsored chieftain out of Hejaz. In the following two years,

Ibn Saud waged several other small campaigns and completed his conquest over the territory that was named Saudi Arabia^{1.} in 1932 in Ibn Saud's honor.

Because of his exploits in uniting the various territories into one integrated country, Ibn Saud became the most powerful and influential ruler in the Middle East and was known as the "Son of the Desert." He was influential enough to set up his own form of government which, at first glance, appears to be an absolute monarchy. However, Ibn Saud himself is very religious and belongs to the strictest sect of the Islam religion. Therefore, Ibn Saud and his government are supposedly bound by the scriptures from the Koran, which is the Bible of Islam religion. He is guided in his interpretation of the scriptures by a council of religious elders called the Ulama. On matters not covered by Koranic law, the king makes his own rules. The four former kingdoms are now the four provinces of Nejd, Hejaz, Hasa, and Asir. Each of these provinces are now governed by a viceroy appointed by the king. Two of these viceroys are sons of the king (he had 32 sons at last count), and the other two are relatives of the king. The cities and villages are governed by amirs, who act both as administrators and judges. Since the basis of the legal system is the Koranic law, the theologians play an important part in assisting and advising the governors in legal and judicial matters. Western democratic institutions are practically unknown; consequently, justice in Saudi Arabia is rather harsh by American standards.^{2.} For example, the crime

1. K. S. Twitchell, Saudi Arabia (Princeton, N. J., The Princeton University Press, 1947), pp. 156 f.

2. On Cit. pp. 162 f

of stealing is punishable by cutting off a hand. An interesting contrast between the American and Arab viewpoints is shown by the fact that the Arabs consider our means of punishment by confinement almost unbearably cruel. So, all in all, the government under Ibn Saud is more of a theocracy than an absolute monarchy. However, Ibn Saud is growing old and is handicapped by old battle wounds which means that Saudi Arabia will have a new ruler in the near future. The heir apparent, Prince Saud, lacks his father's warlike background and, when he becomes the ruler, it is doubtful that he will be able to retain the same degree of respect and obedience that his father has commanded from his tribal chieftains. So, many Middle East authorities and Aramco officials are quite worried about the complex, and perhaps disastrous, situation that may arise after the powerful Ibn Saud's death. Although it is rather certain that Prince Saud strongly desires to maintain the friendly ties that now link Aramco and Saudi Arabia, it is quite uncertain whether or not he can retain the same degree of unity and loyalty among his subordinate tribal chieftains. This means that the present Aramco and Tapline owners could lose part or all of their large investment in Saudi Arabia.

Today, the present kingdom of Saudi Arabia covers almost the entire portion of the Arabian Peninsula and is approximately one-fourth the size of the United States. It consists mostly of steppes and deserts similar to the terrain found in Arizona and Nevada. During the last ten years, Saudi Arabia has been an excellent example of a country whose living and economic conditions have had to make the transition from

1950 B.C. to 1950 A.D. within a span of a few short years. A few years ago, this country was almost completely isolated from any contact with the Western World, and the sudden introduction of a large modern petroleum enterprise into a primitive desert community has had far-reaching repercussions upon the economic and social life of the inhabitants. This sudden transition has caused many difficult and deversified problems for Aramco officials. The three major problems encountered were: the total lack of any technical training of the Arabs; the complete lack of any modern facilities, accentuated by the type of terrain and climate where major operations are located; the primitive financial system of the country, coupled with the Arab's distrust of modern banking techniques.

When Aramco first arrived in Saudi Arabia, the company had to draw as much of its personnel as possible from the people of the country for reasons of practical necessity as well as political expediency. The difficulty was that the Arabs only knew the ways of the camel; they knew almost nothing about machinery. Very few natives had any kind of formal education, and even truck drivers were very scarce. Aramco has tried to offset this obstacle through a unique training program; meanwhile using Americans and people of other nationalities for jobs that the Saudi Arabs are not yet qualified to hold. The company has about 14,000 Saudi Arabs on its payroll, not counting those employed by contractors doing work for the company. When first employed, 88% of the Saudi workers are illiterate and only an insignificant number have any technical experience at all. After the new

employee is given an aptitude test, he is given ninety days of pre-job training. After being assigned to a specific job, the Arab continues his training by devoting one hour out of each eight working hours to learning new skills that will qualify him for more specialized and better paying positions.^{3.} Some of these trainees have moved up to become foremen and supervisors; a very small number have moved up to senior staff status. Aramco encouraged other skilled workers to quit the company and enter into business for themselves. The Arab Industrial Development Department was established for this purpose. The system has worked out surprisingly well, and today Aramco deals with several hundred independent Arab contractors. Some contractors have grown enough to start corporations. Most of them are engaged in goods and services enterprises.

However, only a minute part of the total population of around four million people work directly or indirectly for the company. The major part of the population consists of wandering tribes, whose occupation is tending herds of camels, sheep and goats. In the towns (which are generally located on the oasis), production and trade are carried on in much the same way as they were in medieval times. The townspeople are principally merchants, artisans, and gardeners who work in nearby fields. The cultivatable land around the oasis towns is largely owned by a few wealthy landholders who rent the fields-- usually for a fixed amount of the produce. The most important

3. New York Herald Tribune, May 4, 1952, Editorial page.

professional class is the religious teachers, who conduct services in the mosques and have certain judicial functions under Moslem law. Before the advent of the oil industry, there was no middle class; just sheiks and rich merchants, on one hand, and town slum-dwellers, on the other. But since the oil operations have started, a middle class--based on industry--has begun to grow up.^{4.}

The second problem of lack of modern facilities means, primarily, the lack of any adequate transportation means in the form of highways, automotive equipment, railroads, and sea port facilities. When Aramco first started operations in Saudi Arabia, there were no railroads; only one major highway; and only two seaports, which were located where Aramco could not fully utilize them. Because of these conditions and the nature of Saudi Arabia's terrain, Aramco has developed the largest air transport system operated by any private company, with the exception of major air transport companies.^{5.} Some of these transportation problems will be seen more clearly during the description of Aramco operations, because the introduction of petroleum and its consequent huge royalties have done much to improve and expand the existing transportation facilities.

For a country whose ancestors invented the wheel and first developed the use of Arabic numbers, their descendents--through the centuries--have fallen far below the traditional high standards. Much of the blame for this condition may be

4. Twitchell, op.cit., p. 171.

5. New York Herald Tribune, May 4, 1952, Editorial page.

attributed to the newness of the unity and government of the country. The other major cause is the almost total lack of minerals and raw materials (except petroleum), which has deprived the country of any type of industrial development. The only other exploitation of the country's mineral resources is also carried out by a foreign-owned company. In 1932, gold was discovered about 250 miles north of Jidda and the government granted a concession to the Saudi Arabian Mining Syndicate to discover and develop all of the mineral wealth of the country except oil. The Saudi Arabian Government owns about 15% of the shares and, in addition, receives 5% royalties. Saudi Arab nationals own about 10% of the shares. The remaining 75% is equally divided between private companies from the United States, Great Britain, and Canada. About one million dollars' worth of gold concentrates plus small amounts of silver, lead, and copper are produced annually. However, the ore that is mined is of such a complicated nature that it must be shipped to the United States for separation since Saudi Arabia does not have the extensive facilities necessary for the separation process.⁶ This lack of any industrial development has naturally had many dire consequences besides those already mentioned. Chief of these affecting Aramco operations to a large extent is the antiquated monetary system. The Saudi Arabian Government not only does not publish any type of budget but does not even prepare one. It has very few, if any, statistics about its foreign or domestic trade, and it does not even have a first approximation of its own population

6. Twitchell, op.cit., p. 174.

figures (estimates range from three to six million). This indifference has symbolized the attitude of the government since its inception until a year or so ago. Aramco and United States officials have finally persuaded the government to let U.S. experts analyze their position and make recommendations to enable Saudi Arabia to keep abreast of the changes that the petroleum discovery has caused. Gradually, the government has started practicing modern budgetary, tax, and control systems. All changes in the monetary system will have to be slow, because of the distrustful attitude of any form of paper currency by both the Arab and the government. Until recent times, there has never been any type of paper currency on the Arabian Peninsula. The typical Arab leads a nomadic life and has very little savings except his material possessions. Therefore, the Arab naturally prefers a metallic currency of small value. Under the present government, the official medium of exchange is the silver riyal. Its value is the bullion value of silver, which fluctuates around \$0.25. However, the traditional and de facto monetary standard is the English gold sovereign. In New York, the bullion value of the sovereign is \$8.24, but around the Middle East its value varies in the wide range of \$12.00 to \$20.00. These large fluctuations have caused some serious problems for Aramco--with both the Saudi Arabian and United States Governments. Also, because of the lack of paper currency, Aramco is given another headache by having to make all payroll and royalty payments by the very inconvenient method of large quantities of coins. Aramco must constantly employ a large transport plane to fly to different

countries to buy planeloads of sovereigns in order to meet these large transactions. To increase the difficulties, there are only two banks in Saudi Arabia, both located at Jidda--across the country from Aramco's main headquarters. One bank is British and the other is Dutch. The government, because of its distrust of banks, hardly used the banking facilities at all until recent years. But now that Aramco has thrown the country into a large number of international monetary dealings which have complex financial structures, the government has been forced into relying more and more upon the banking procedures. In addition, the government has financed a large amount of internal improvements from its huge oil royalties, which have also helped point out the weaknesses of their financial system. So the government has become convinced of the necessity of a financial revolution. All that remains is to change the ideas of the unchanging Arabs and develop the best possible system to obtain a smoothly functioning economy.

From the foregoing brief description of Saudi Arabia, it is hoped that one can see the major obstacles of the country which Aramco has had to overcome and must still contend with-- in addition to its primary aim of producing and distributing its final petroleum products. The other problems will be brought out more clearly in the following chapter, which is devoted mainly to Aramco's development.

III. Aramco and Tapline Development

The entire Middle East has been embroiled in a cycle of development all its own since the beginning of known history. Centuries ago, it was one of the major centers of knowledge, mystery, and riches. While other parts of the world began their industrial and intellectual development, the Middle East lapsed into a degenerate atmosphere until it finally became one of the most underdeveloped regions of the world. But around the turn of the twentieth century, the discovery of petroleum ironically, or perhaps fortunately, turned this area into one of the most strategic and controversial areas in the world. Under these conditions, Aramco had its meager beginnings in the newly-formed kingdom of Saudi Arabia.

The development of the various petroleum concessions, and the extremely complex corporate structure that resulted, is given in great detail in many different sources. However, in this paper only a very brief picture will be presented of the petroleum developments prior to the advent of Aramco operations. Around the turn of the century, the Americans, in general, felt quite secure about the petroleum resources located within our sphere of influence; consequently, foreign petroleum operations were almost wholly initiated and developed by countries other than the United States. Gradually, the Royal Dutch Shell and Anglo-Persian Oil Company emerged as the chief controlling companies outside of the United States. It wasn't until after World War I that American companies began making an active interest in foreign operations. There were

several motivating factors behind our change of policy: the most important factor was the reports which predicted our own possible shortages of reserves within the near future, the fear that the British and Dutch would soon develop into an impregnable empire excluding any future possible American entrance, and the anxiety over the possible loss of the Mexican concessions. However, the American oil interests had waited too late for the Dutch and British concerns were already firmly entrenched in the then known foreign oil deposits. Because of the American government's fear of our own dwindling reserves, our government took radical steps with the other governments in order to obtain equal opportunity for the American companies in foreign operations. Although our fear concerning our oil reserves proved groundless, it served as a good incentive to make the government and the major oil companies cooperate in obtaining equal rights for American companies abroad. The final result was that American oil interests acquired wide exploration and development rights in the Middle East and the Indies. Suspicions of the existence of an oil monopoly from which the United States was excluded gradually subsided, and the large international oil companies of all nationalities gradually drew together in a network of agreements.^{7.} When the American companies entered the Middle East, they acquired a total of 23 3/4% interest in the Iraq Petroleum Company. At this time, the IPC only held the East Tigris concession, so the famous Red Line Agreement was adopted, and all participants in the IPC were bound by this pact. This pact, primarily, pledged

7. Feis, Herbert, *Petroleum and American Foreign Policy*, (Food Research Institute, Stanford University, Calif., March, 1944).

each participant not to undertake independently any oil developments within what is known as the Red Line Area. This area included all of Mesopotamia, Arabia, Palestine, Syria, Lebanon, and Turkey both in Europe and in Asia Minor, and the Sheikdoms of the Persian Gulf with the exception of Kuwait.⁸ Although this agreement is no longer recognized, at the time it was regarded as a useful and necessary measure to forestall over-zealous competition among the IPC participants for oil concessions.

The initial Saudi Arabian concession was hinged quite closely with the concessions obtained and developed on Bahrein Island, a small island just off the eastern coast of the Arabian Peninsula. In 1927, an Englishman named Frank Holmes obtained a concession in Bahrein Island and Saudi Arabia because of doing some previous drilling for water there. Holmes transferred the Bahrein concession to the Gulf Oil Corporation in 1928 and let the Saudi Arabian concession expire. However, Gulf--at the time--was a stock-holder in the IPC and, therefore, subject to the Red Line Agreement. The IPC felt that the geologic structure of Bahrein was unfavorable to the discovery of oil and Gulf was required to transfer this concession. So the Bahrein concession, in 1928, was transferred to the Standard Oil Company of California, which was not then subject to the Red Line Agreement.⁹ Since Bahrein was a British

8. Arabian American Oil Company, Middle East Oil Developments, (New York: 1952), p. 8.

9. Ibid, p. 8.

Protectorate, Standard of California was required to obtain the approval of the British Government. Consequently, the Bahrein Petroleum Company that was formed as a subsidiary of Standard of California was incorporated in Canada.^{10.} The Bahrein Company began explorations immediately and discovered oil in 1932. From this point, it is not quite certain how Standard of California obtained the concession in Saudi Arabia. The International Petroleum Cartel Report claims there was intense competition between Standard of California and the IPC for the concession in Saudi Arabia after the oil discovery in nearby Bahrein.^{11.} However, Karl Twitchell, a mining engineer who was a close friend of Ibn Saud, maintains that he approached American members of the IPC during this period and could not even interest them in acquiring exploration rights in Saudi Arabia. He finally acted as an agent for Standard of California, who seemed to be the only American company interested in Saudi Arabia.^{12.} At any rate, Standard of California obtained the concession from Ibn Saud, and the subsidiary California Arabian American Oil Company was formed as a Delaware corporation in December 1933. The American incorporation was possible because Ibn Saud had broken all ties with the British by treaties made in 1927. Although the exact circumstances surrounding Ibn Saud's granting the concession to Standard of California are somewhat vague, it is definitely known that he was partial to the American interests. His previous encounters with the

10. U.S. Congress, Staff Report to the Federal Trade Commission, submitted to the Select Committee on Small Business, U.S. Senate, The International Petroleum Cartel, (Washington: Government Printing Office, 1952), p. 74.

11. Ibid, p. 75.

12. K.S. Twitchell, Saudi Arabia (Princeton, New Jersey: Princeton University Press, 1953), pp. 148 ff.

British during his desert campaigns; the unhappy failure of the previous concession with a British citizen; and the knowledge of how the British had interfered with the internal affairs of other oil-rich countries--these three factors definitely influenced Ibn Saud against any British company or any company in which the British were major participants, such as the IPC. Standard of California was the only other major company not embroiled in any far-reaching agreements with the British companies, so this company received the opportunity to commence operations and progress along with the newly-consolidated country. The concession granted to the wholly-owned California Arabian Standard Oil Company covered approximately 360,000 square miles, an area comparable in size to the States of Oregon and Washington. The concession was to run for 60 years and, in addition, the company was given preferential rights to acquire additional oil concessions in Saudi Arabia by meeting the terms of any other offers made to the government. There were other arrangements for the company payments of royalties, loans, gifts, etc., and the company was also required to build a small refinery to supply local needs.^{13.}

The company started exploration in 1934, but other events led to a merger with the Texas Company. In 1935, Standard of California built a refinery on Bahrein Island to refine the crude oil that was produced on the island. Prior to this, Standard of California was mostly a domestic company and had relied upon the foreign marketing facilities of Sacony-Vacuum

13. The International Petroleum Cartel, op.cit., p. 116.

for all of its foreign distribution. Consequently, the California company had not developed any marketing facilities that could handle its refined products that were now coming mostly from the Middle East instead of the United States. Also, the exploration in Saudi Arabia was turning out to be rather discouraging, and the California company was getting involved in some heavy expenditures to the Saudi Arabian government. The Texas Company was, at this time, another major petroleum company that was not restricted or hindered by the Red Line Agreement. It had no large source of crude oil in the Middle East, but it had large marketing facilities both in the European and the Far East areas. Thus, a perfect merger was indicated with one company having the source of crude oil and the other company having excellent marketing facilities. Two separate and independent agreements were consummated within such a short period of time that they appear as one. The first agreement, primarily, gave the Texas Company one-half interest in the Bahrein concession and its facilities. It gave Standard of California one-half interest in all of Texas Company's marketing facilities that were East of the Suez Canal in which to market its Bahrein products. Thus, a marketing subsidiary of the Bahrein Petroleum Company was formed that was called California-Texas Oil Company, Ltd. (Caltex) and was incorporated in the Bahama Islands. This consolidation occurred in July 1936, at which time oil developments were still not looking too good in Saudi Arabia. However, after this first merger was made, a well was drilled in Saudi Arabia that looked like it might have future commercial

possibilities. So, a supplemental agreement was made in the form of a three-year option in the case of Saudi Arabia. The Texas Company was to receive half interest in the California Arabian Oil Company and Standard of California, in turn, was to receive a half interest in the European marketing facilities of the Texas Company.^{14.} These two different mergers now show the following picture: Standard of California and the Texas Company each control one-half interest in the two subsidiary producing companies--Bahrein Petroleum Company and the California-Arabia Oil Company. In addition, they each own and control half of the California-Texas Oil Company, Ltd., which is solely a marketing company with facilities in Europe, Africe, and the area East of the Suez.

In 1938, the first successful well was drilled in the Daman area, which indicated vast commercial possibilities. This discovery virtually started an "oil rush" to Saudi Arabia. The axis powers of Germany, Italy, and Japan--along with the IPC--were the major contenders for other concessions in Saudi Arabia. Although Japan offered much more attractive financial arrangements, Ibn Saud still preferred the American company, primarily because of their friendly relationships and the fact that the German and Japanese companies were not private companies,^{15.} but were government controlled. In addition to its previous concession, the California-Arabian Company added about 80,000 square miles to its original concession, bringing its total

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14. U.S. Congress, Senate, Hearings before a Special Committee Investigating the National Defense Program, Petroleum Arrangements with Saudi Arabia, Part 41, Extending Senate Resolution 71, 80th Congress, 1st Session (Washington: Government Printing Office, 1948), p. 24836 f.
15. L.M. Fanning, American Operations Abroad, (New York and London: McGraw-Hill Company, Inc., 1947), p. 93.

concession area to 440,000 square miles. It also received preferential rights in the disputed area called the Kuwait-Saudi Arabia Neutral Zone. The concession was again extended 60 years to 1999, and the prevailing Middle East royalty rate of four shillings per ton (\$0.22 per barrel at the international exchange rates) was continued. Also, there were other payments and financial arrangements made with the government. Later, the option of the California-Texas merger became a permanent agreement with additional financial transactions between the two parent companies.

After the initial discovery, exploration continued at a rapid rate, which discovered three major fields by the start of World War II in 1941. During this period, a small refinery with a capacity of 3,000 barrels per day was built at Ras Tanura to supply local needs. The rest of the crude oil was shipped to Bahrein Island to be refined and marketed by the Caltex Company.

During the period 1933 to 1941, the company had invested \$27,500,000 in the Saudi Arabia operations, in addition to an advance of \$6,800,000 to Ibn Saud to be applied against future royalties.¹⁶ For this huge investment, the company had received very little in the way of compensation and were now faced with global war. Mr. Moffet, president of Caltex at that time, said that the California-Arabian Company could have produced from 100,000 to 200,000 barrels per day, but they were restricted in production because there was no available outlet for Arabian

16. Hearings before a Special Committee Investigating the National Defense Program, Part 41, op.cit., p. 24725.

17. oil. Mr. Moffet blamed this lack of markets on the cartel arrangements that were then in existence between the major international oil companies. Mr. Moffet made this statement in 1947, during a period in which he was suing the parent companies for a substantial sum of money for past services rendered. Mr. Moffet maintained that this cartel arrangement was the reason that the oil companies had to approach the U.S. Government for various types of aid. The company officials make no direct reply to Mr. Moffet's statement, but they say they approached the U.S. Government for the purpose of selling oil to the Navy and to obtain aid for Saudi Arabia. Ibn Saud, at the time, was still undergoing growing pains, and his chief means of revenue came from the annual pilgrimages of Moslems to the Holy Cities of Mecca and Medina. This revenue was now cut off because of the war, and Ibn Saud naturally turned to the oil company for additional loans to be repaid by future deductions from the expected royalties. Because of their already heavy investment and no immediate prospects for marketing their oil, the California-Arabian Company could not obtain the financial resources to lend Ibn Saud the thirty million dollars that he needed to offset his budget losses. For a complete understanding of California-Arabian's problem during this period, it is necessary to review the international situation in the Middle East at that time. Although the United States was not yet officially at war, the British had their backs against the wall in North Africa. The Germans had the

advantage at the time, and Britain needed any and all types of aid. The Middle East was in a very strategic position at the British rear. Although the Middle East in general was still neutral, it was considered an extreme "hot spot" which could sway to either side. Into this picture, the California-Arabian Company had several choices of action. First, it could try to raise the necessary large funds itself to protect its previous large investment. There would be a considerable risk involved even excluding the problem of selling the oil. There was a good possibility that Saudi Arabia could be split by internal revolt or that the country would be captured or become a German ally or that the company's present equipment be totally or partially destroyed by the ravages of war. Secondly, they could accept Britain's proposal of lending the money to Ibn Saud from the lend lease aid that the U.S. had given to Britain. This was a critical period for the British, and they wanted the Saudi Arabian question favorably settled as soon as possible. However, if the British received the credit for this loan, which was essentially U.S. money, the British prestige would be considerably strengthened in the one major country of the Middle East which was now relatively free of the British influence. If Britain obtained too much prestige in Saudi Arabia, this could possibly put Saudi Arabia solidly in the Sterling Bloc and effect a considerable loss to the American parent companies. Thirdly, the company could try to arrange some financial agreements between Saudi Arabia and the U.S. Government.

Obviously, it would be much to the advantage of the parent companies to follow the latter course. Because of this

decision, the company officials became deeply involved in Washington politics and this situation has increased with the years. Conferences were held with President Roosevelt on down the chain of command. In general, the parent companies tried to persuade the U.S. to lend the thirty million dollars to Saudi Arabia over a period of five years under the auspices of the Lend Lease Act. In return, the oil company would repay the government by selling the U.S. Navy a specified amount of products refined at Bahrein for extremely low prices. In spite of all the pressure by the parent companies and the generally favorable attitude of the U.S. officials, the arrangements never materialized due to some technicalities in the Lend Lease Act. Consequently, the affair was partially ended by having Britain direct ten million dollars of its Lend Lease to Saudi Arabia. The British succeeded in opening a bank in Saudi Arabia, but its consequences were not as bad as the petroleum companies had feared.^{18.}

During this period of negotiations, the California-Arabian Oil Company changed its name to the Arabian American Oil Company for psychological reasons. It became the first company in the Middle East to put the name of the producing country first. In the early part of 1943, Aramco finally succeeded in its negotiations with the U.S. Government. The U.S. lent Saudi Arabia eighteen million dollars (today it is labeled "unrecoverable") under the Lend Lease Act and substantially the same agreement as previously proposed between the U.S. and Aramco was confirmed. However, at this time,

18. Ibid, pp. 24836 ff.

Aramco was in a better bargaining position than previously because of the critical petroleum supply; so the price of the refined products were much higher.^{19.}

In the latter part of 1943, the U.S. Government tried to buy a controlling interest (51%) in the stock of Aramco similar to that of the British government owning controlling stock in the Anglo-Iranian Oil Company. However, there was so much opposition to this proposal from the oil industry and government officials that the negotiations were abruptly dropped.^{20.} Immediately after these negotiations, discussions for a proposed pipe line from the Persian Gulf to the Eastern Mediterranean were started between Aramco and the government; thus, the stormy history of Tapline was started. Many different proposals were studied regarding some type of government ownership or options and financial aid. At the time, the estimated cost of building Tapline was 100-120 million dollars. Because of this huge investment, the critical tanker shortage, and the U.S. Government's desire for an absolute source of supply at rates cheaper than the world price--Aramco and the government were both very eager to conclude an agreement. The most popular proposal involved the government lending or subsidizing the necessary funds for the projected pipeline. In return, the government would receive first call on a billion barrels of the crude reserve at a cheaper rate than the prevailing price. In addition, the government wanted to operate the pipeline as

19. Ibid, p. 24871.

20. Ibid, p. 24871.

21.
a common carrier as it is done in the United States. These proposals concerning the entry of the government into private industry engaged in foreign operations was naturally a very controversial subject. The proponents argued that some type of government participation would give a semi-official status to the concession by displaying the fact that our government regarded this source of supply as a military reserve. This should discourage unfriendly intrigues and help stabilize Ibn Saud's government by discouraging local impulsive disorders. Also, the American government wouldn't be so deeply committed as to have to support the company if it was wrong or made a mistake. The opponents advanced all of the traditional arguments of government favoritism and participation in private industry. They also argued that the government would have an inflexible obligation to protect a private property with all of the possible international problems that could arise. Again, the opponents of any such merger between private industry and the government had their way, so the Tapline project was left to the parent companies of Aramco alone. In conjunction with the above proposals, there was also an attempt made to obtain aid from the U.S. Government in order to build a small refinery at Ras Tanura. This proposal was also turned down for essentially the same reasons as the pipeline. In spite of this additional refusal, Aramco began construction work and completed the refinery in 1945 at a cost of \$50,000,000. It had a capacity of 50,000 barrels per day and produced diesel and fuel oil primarily for military purposes.

22.

21. Ibid, p. 24871.

22. Ibid, p. 24882.

After the war, a series of events occurred that still have obscure explanations. In December 1946, an engineering survey was started across the Arabian desert for the construction of Tapline. This pipeline would connect the gathering facilities in Eastern Saudi Arabia to the port of Sidon, Lebanon on the Eastern Mediterranean. This would save the twenty-day, 7200 mile, round-trip from Ras Tanura through the Suez Canal to the Mediterranean Sea, thereby relieving 65 critically needed tankers. It was a vast project, and the estimated cost was 170 million dollars. Prior to this, in mid-1946, Jersey Standard and Socony-Vacuum started discussions with the Texas Company and California Standard concerning a joint merger in Aramco and Tapline.^{23.} Different groups connect different reasons for this merger, and the answer probably lies in a combination of the various factors. The formal agreement was not worked out and signed until March 12, 1947, and it was contingent upon the outcome of decisions concerning Jersey and Socony-Vacuum participation in the declining Red Line Agreement. The Federal Trade Commission contends that the major reason was the "as is" agreements between the international companies which prohibits the disruption of the existing distribution pattern. Also, that Aramco was compelled to admit Jersey Standard and Socony-Vacuum to obtain additional market outlets for the Arabian oil. This would increase Arabian production and royalties to Ibn Saud,^{24.} which would stabilize the Arabian concession. Aramco officials give a different version: they maintain that there was a shortage of marketing facilities, if anything, and not marketing outlets

23. The International Petroleum Cartel, op.cit., p. 120.

24. Ibid, p. 121.

because demand for oil at the time was far above any possible oil production. They said that the major reason was financial and the two parent companies felt they were carrying an excessive risky investment in an area of extreme political unrest--namely, the growing Arab-Israel problem. In fact, Mr. Rodgers, chairman of the Board of Directors of the Texas Company, testified that there wouldn't have been any sale of Aramco stock if the parent companies had known beforehand that the Truman Doctrine would be extended to Greece and Turkey. The Truman Doctrine regarding Greece and Turkey was announced a few days after the Aramco sale in 1947. Apparently, the two parent companies associated the extension of this doctrine very intimately with the protection of the oil reserves in the Middle East. This doctrine was the first outstanding recognition of our interest in the Middle East in a very substantial way.^{25.} The agreement signed in 1947 contained the following seven agreements:^{26.}

(a.) Loan Guaranty Agreements whereby Jersey and Socony guaranteed payment of a \$102,000,000 loan, which Aramco was obtaining from a group of banks for the construction of Tapline.

(b.) Stock redistribution of Aramco as follows: California Standard, The Texas Company, and Jersey Standard each with 30 per cent; Socony-Vacuum with the remaining 10 per cent.

(c.) Same stock redistribution in Tapline.

25. Hearings before a Special Committee Investigating the National Defense Program, Part 41, op.cit., p. 25289.
26. The International Petroleum Cartel, op.cit., p. 120.

(d.) Pipeline agreements between Tapline and the parent companies.

(e.) Interim off-take agreement between Jersey, Socony, Caltex, and Aramco.

(f.) Permanent off-take agreement.

(g.) Agreement between Jersey, Socony, and Aramco regarding the settlement of a gold royalty problem with the Saudi Arabian Government.

After the conditional Aramco agreement was signed (the agreement became permanent the following year after a favorable decision was obtained regarding the Red Line restrictions), the parent companies of Aramco began work on the projected Tapline. There were many problems to surmount such as engineering difficulties, supply and material problems, and political and manpower problems. The engineering problems can be appreciated when it is realized that the 1068-mile line had to pass through a vast amount of desert in Saudi Arabia and had to traverse rugged mountains in the western end. The terrain presented such difficulties as local transportation and water supplies. The supply situation involved the largest logistics problem ever faced by a private company. Materials were ordered from over 5,000 different firms in the United States 10,000 miles away. Materials, even when readily available, had to be ordered from six months to a year in advance. Shipment had to be planned so that each article arrived at the work site shortly before it was needed in order to prevent mountainous stock-piles at the terminals. Many ingenious devices were applied to reduce various transportation costs by reducing the

number of trips needed from the United States. On the political side, there were two major problems: the allocation of steel and the Palestine situation. Grave difficulties arose over securing a right-of-way through Syria, because of the stand the United States had taken on the Jewish refugee problem. It required a long period of political wrangling with the Syrian Parliament before approval of the right-of-way was finally obtained. The steel question was even more difficult and was also connected with the refugee problem. The steel supply was very critical after the war and all steel shipped out of the United States had to have government approval. Aramco only received approval after it promised to reduce the price of crude shipped through the line.^{27.} After construction was started, the public and industrial opposition to these large exports of steel caused the government to withdraw its approval. Aramco then had to stop construction for approximately a year until the shortage of steel subsided.^{28.}

The construction contracts were awarded to two different companies; one to work inland from the Mediterranean coast and the other to work inland from the Persian Gulf. Because there was no adequate seaport, one construction company--in addition to laying the pipeline--also had to construct a complete seaport terminal. The time sequence of the construction operations was as follows:^{29.}

Date construction authorized	---	March 10, 1947
Date of first main line weld	---	January 16, 1948
Date of final main line weld	---	September 25, 1950
Date of first tankers loaded	---	December 2, 1950

27. New York Times, August 22, 1952, p.25.

28. Trans-Arabian Pipe Line Company, Tapline, (New York; January 1951), pp. 3 f.

29. Ibid, p. 34.

The portion of Saudi Arabia that Tapline traverses is shown on the map on page 41. Officially, the Tapline portion of the line begins at the royalty-gauging tanks at Qaisumah and extends westward 753.5 miles to the port of Sidon. From Qaisumah eastward, the line is owned and operated by Aramco. This line leads to other Aramco gathering facilities and can be extended to new fields as they are discovered. Therefore, Aramco has control whether the crude is sent to Qaisumah for transmission to Sidon or whether it is sent to Ras Tanura, where it is either refined or loaded directly on crude carrying tankers. The following table gives some of the more pertinent facts concerning Tapline and its gathering facilities:

	<u>Aramco 30"-31" Gathering Facilities</u>	<u>Tapline</u>	<u>Total</u>
Maximum throughput	300,000 BPD	300,000 BPD	300,000 BPD
Length & size of pipe	314.7 mi. 30"-31" OD	747.4 mi. 30"-31" OD 6.1 mi. 22"-24" OD	1068.1 mi.
Volumetric contents	1,445,100 Bbls.	3,454,000 Bbls.	4,899,000 Bbls.
Pumping stations	2	4	6
Estimated total Cost	\$62,000,000	\$168,000,000	\$230,000,000

Actually, because temperature variations can affect the maximum flow, the throughput can vary from 290,000 b.p.d. to 330,000 b.p.d., depending upon the season of year. At Sidon, thirteen (now

10. Ibid, P. 33.

11. R.J. Liss, "Unattended Booster Station," Oil and Gas Journal, Vol. LI, (October 13, 1952), p. 207.

increased to twenty) 180,000 tanks were constructed for the storage of crude oil. For the loading of tankers, there are facilities for off-loading by gravity flow at a maximum rate of 26,000 barrels per hour.^{32.} Altogether, Tapline and Aramco require over six million barrels just to fill their pipeline and supply working stocks. The gathering system is even more complicated because it must handle both stabilized and unstabilized crude. Unfortunately, Arabian oil contains the corrosive hydrogen sulphide which is commonly referred to as "sour" crude. Tapline, itself, does not transport "sour" crude, so the crude must be processed through stabilizer columns before entering the Tapline portion.^{33.} At present, Aramco has transportation and storage facilities to handle over a million barrels per day.

Besides the construction of Tapline and its auxiliary facilities, Aramco has made a number of other improvements: the capacity of the Ras Tanura refinery has been increased from 50,000 b.p.d. to 175,000 b.p.d.,^{34.} underwater crude pipe lines were constructed from Ras Tanura to Bahrein Island with a maximum throughput of 195,000 b.p.d.,^{35.} and a refinery has been constructed at Sidon by Caltex with a capacity of 13,000 b.p.d. to meet local needs and some of the tanker requirements.^{36.} In addition, Aramco has developed and supervised many construction

32. Trans-Arabian Pipe Line, op.cit., p. 36.

33. Dahl M. Duff, A Series of Articles about the Arabian American Oil Company, Reprinted from the Oil and Gas Journal, October 11, 1951, p. 4.

34. Ibid, p. 4.

35. "The Slow Boat to Bahrein," in Aramco World (published by Arabian-American Oil Company; February 1953), p. 2.

36. "Summary of Recent Economic Developments in the Middle East," Supplement to the World Economic Report 1950-1951 (New York: United Nations Publications, April 1952), p. 23.

works for Ibn Saud; such as constructing a 350-mile railroad, enlarging and improving port facilities, building highways and airports, and conducting some experimental farm projects.

Along with these major changes in operation facilities and Aramco ownership, there were also some major changes in Aramco's agreement with Saudi Arabia. There were some long-standing disagreements in the original concession agreement between Aramco and Saudi Arabian Government. In 1948, one disagreement was partially settled by increasing the royalties from 22¢ a barrel to 34¢ a barrel. In 1950, Aramco became the first company in the Middle East to enter into the 50-50 profit split. In this agreement, the Saudi Arabian Government receives 50% of Aramco's net profits after taxes have been paid to the U.S. Government. Aramco also agreed to move the main Aramco headquarters from New York to Saudi Arabia and admit two Arabs to the Board of Directors. In return, there were certain stipulations that made Aramco royalty and payroll payments somewhat easier. Before, Aramco had to buy local currency from the government at a premium rate and all royalty payments had to be made in sovereigns. In the new contract, Aramco is permitted to buy local currency at the prevailing rate, and is also allowed to pay a certain proportion of the royalties in the currency which it receives for its crude and products.^{37.} It is known that the Saudi Arabian Government wanted to increase their 50% income by making Aramco sell to its parent companies at the current Persian Gulf price instead of selling at the dis-

37. Ibid, p. 33.

count which was arranged by a long-term contract between Aramco and its parent companies. The government also wanted to increase the relinquishment rate in the area where Aramco has preferential rights. This would allow Ibn Saud to make additional concessions in these areas to other companies.^{38.} No details have been made public concerning these last proposals, but they have evidently been settled in Aramco's favor.

In recapitulation, Aramco had a very slow beginning in an under-developed region with a newly-formed government. From the discouraging results of the first few years, Aramco has progressed to the largest, single oil-producing company in the world. Throughout this period of development, it has had a stormy history with regard to controversial issues in domestic and international politics. It undertook and completed, in the face of tremendous obstacles, the construction of the longest pipeline in the world. It has developed and maintained the best possible relations with the Saudi Arabian government and the Arabs. Because of the initiative displayed during its development, Aramco is now in a position to play an exceedingly important role in the future petroleum trade and price patterns.

38. "New Aramco Agreement," Oil and Gas Journal, Vol. LI (June 30, 1952), p. 49.

IV. General World Trade Pattern

The ultimate pattern of the world's international oil trade depends upon the relationship between the oil-producing areas and the highly industrialized areas that have high rates of oil consumption. The areas of high crude oil production, in turn, depend mostly upon the location of the world's known oil reserves. The world's actual oil deposits naturally cannot be changed by human endeavor, but the known oil reserves depend wholly upon the exploration carried out by individuals and the oil companies. Up through World War I, exploration was very extensive in the United States, and we were very fortunate to have huge oil deposits to aid our industrial growth. However, between the two World Wars, huge oil deposits were discovered in the Caribbean area and the Middle East. The Caribbean area was developed to a relatively high degree prior to World War II, but the war retarded the development of the later discovered Middle East fields. Consequently, the Middle East did not have any appreciable effect in world trade until after its rapid expansion following the war.

As previously stated, the United States began extensive oil exploration long before other areas of the world. It thereby became the largest source of known reserves and produced over three-quarters of the world's petroleum products. The United States and the Caribbean area continued as the major producers and exporters through World War II. The Middle East exploration rate began on a large scale following the war and the location of the known world's reserves changed tremen-

dously during this period. This expansion resulted in the following distribution of known reserves:

I. World Crude Oil Reserves as of January 1953. ^{39.}

Billions of Barrels		
Far East-----	2.3	(2.0%)
Europe-----	7.6	(6.6%)
South America---	11.0	(9.6%)
North America---	32.5	(28.2%)
Middle East-----	61.6	(53.6%)
World Total-----	115.0	(100.0%)
		---United States=29.0 (25.2%)
		---Saudi Arabia =18.0 (15.6%)

This table shows that the Middle East has, by far, the greatest proportionate share of the world's known deposits, and its proportionate share is expected to continue to increase at a rapid rate with further exploration work.

Table II, on the following page, indicates the relationship between actual production and consumption of crude oil. It is clear that there is very little correlation between these three variables in certain cases. For example, North America has less than one-third of the known reserves, yet it produces and consumes over one-half of the total world production. On the other hand, the Middle East has almost two-thirds of the known reserves but only produces about one-sixth of the world total and consumes an almost negligible amount. If all areas of the world had an equal degree of industrialization and political and other factors were about the same, there would be a high correlation between production and known reserves; and international trade would probably exist in a comparatively simple manner from excess-supply areas to deficit areas. Providing that some form of atomic energy does not supplant the

39. "World Crude Reserves," World Oil, Vol. CXXXVI (February 15, 1953), p. 265.

Crude Demand and Supply Areas for 1951 - in Barrels per Day*

	Domestic Demand	Crude Supply	Excess Demand	Excess Supply
United States	6,467,700 (56.5%)	6,149,100 (52.4%)	318,600	-----
Other North America	584,800 (5.1%)	340,600 (2.9%)	244,200	-----
TOTAL--NORTH AMERICA	7,052,500 (61.6%)	6,489,700 (55.3%)	562,800	-----
Caribbean Area	240,600 (2.1%)	1,865,400 (15.9%)	-----	1,624,800
Other South America	502,200 (4.4%)	124,000 (1.1%)	378,200	-----
TOTAL--SOUTH AMERICA	744,800 (6.5%)	1,989,400 (17.0%)	-----	1,246,600
Europe (Excluding USSR)	1,624,500 (14.2%)	188,400 (1.6%)	1,436,100	-----
U.S.S.R.	832,000 (7.2%)	787,700 (6.7%)	44,300	-----
TOTAL--EUROPE	2,456,500 (21.4%)	976,100 (8.3%)	1,480,400	-----
Africa	328,000 (2.8%)	46,500 (0.4%)	281,500	-----
Middle East	255,700 (2.2%)	1,924,100 (16.5%)	-----	1,668,400
TOTAL--MIDDLE EAST AREA	583,700 (5.0%)	1,970,600 (16.9%)	-----	1,386,900
TOTAL--FAR EAST & OCEANIA	632,300 (5.5%)	292,900 (2.5%)	339,400	-----
TOTAL--WORLD	11,467,800 (100.0%)	11,718,700 (100.0%)	250,900	-----

* Source: "World Supply and Demand," World Oil, International Operations Issue, (July 15, 1952), p. 57.

present huge demand for petroleum energy; this simple trade situation may exist in the long-range picture. At present, however, such is not the case because the geographic distribution of the world's production differs widely from the geographic distribution of consumption with the exception of the United States.

Today, the pattern of the world trade is believed to be in the final stages of transition period. Historically, the United States and Venezuela have been the principal suppliers of Europe's petroleum products. However, in the post war era, the United States has become a net importer of petroleum products and Venezuelan crude exports to Europe have been supplanted by Middle East crude oil. Since the rapid rise of Middle East crude production, the Middle East is the only logical source for the expanding European refineries. The overall picture for the intercontinental petroleum trade in 1950 is shown on the map on the following page. There have been some changes during the last two years; namely, more movements of Middle East crude to the United States and the Far East. There has also been a consequent further decline in Venezuelan movements to Europe, but the map shows the essential large-scale movements. From Table II, it is easily seen that the Middle East and the Caribbean area are the only two major excess-supply areas. The map showing the intercontinental oil trade is the natural reflection of that condition.

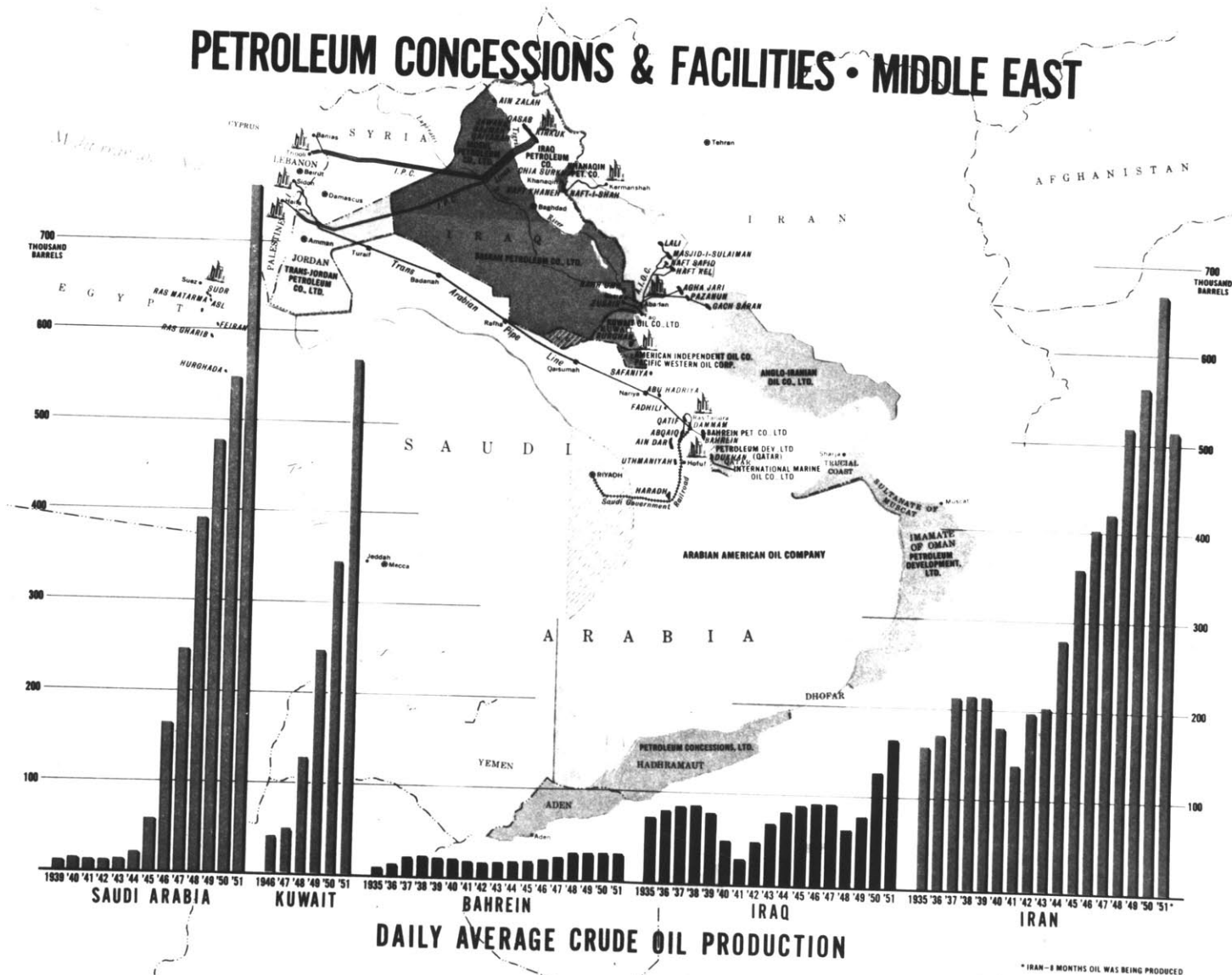
Unfortunately, the trade pattern is not quite as simple as it appears on the map. Factors other than the mere existence of the location of excess-demand and excess-supply areas play a major role in the trade pattern. These factors will be men-

tioned in the next chapter. The major reason for Europe's import needs is the tremendous amount of reconstruction that has followed the destructiveness incurred in the war. This expansion has been largely financed by funds from the European Recovery Program, which was initiated and financed by the United States. One of the main goals of the E.R.P. countries has been the expansion of its refinery capacity. This expanded refinery capacity would permit these countries to conserve their much-needed funds by importing cheap crude oil from the Middle East instead of being compelled to purchase the higher-priced, finished products from the United States. This same refinery expansion in Europe has been the major retarding factor of refinery capacity in the Middle East. Because of this rapid increase in European refinery capacity, the Middle East has been hard-pressed to supply sufficient crude for these refineries. From the end of the war until the end of 1951, there has been an average demand increase of approximately ten per cent per year in Europe alone. The production graph on page 41 shows the tremendous rate of development that the major fields of the Middle East have undergone in order to meet the increase of demand.

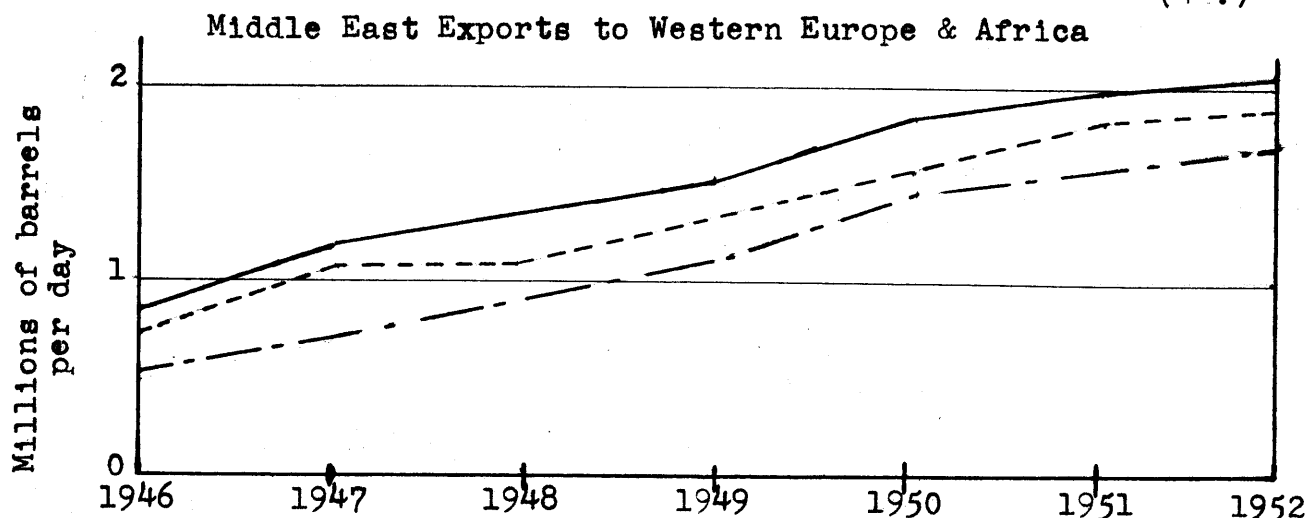
In 1950, the Middle East finally displaced the Caribbean area as the largest net exporting area of the world. The following chart traces the mounting Middle East exportable crude surplus in the post-war years, in relation to how this production is rapidly closing the statistical gap in total European and African required petroleum supply.

40. R.E. Spann, "Royalty Pacts Increase Oil Flow in Middle East," World Oil, Vol. CXXXV (November 1952), p. 330.

PETROLEUM CONCESSIONS & FACILITIES • MIDDLE EAST



Source: Arabian American Oil Company, Middle East Oil Developments (New York: 1952), p. 11.



- Combined total domestic petroleum demand of Western Europe and Africa.
- Required petroleum imports by Western Europe and Africa; total demand less domestic production.
- · - · - Exportable Middle East crude after domestic requirements.

Many of the expansion projects are being, or have been, completed within the last two years. This has consequently reduced the yearly increase in consumption from the high ten per cent to a more normal rate of five per cent per year. As seen by the preceding chart, either Middle East production will have to be reduced or else new markets will have to be sought. The factors that will primarily affect the future trend of the international petroleum trade will be discussed in the next chapter.

V. Factors Affecting World Trade

In the preceding chapter, the relationship was shown between known reserves, areas of excess production, and areas deficient in their oil supply. Although these three factors are the basis upon which the international trade is dependent, there are several other critical factors that have a large effect on the short-range trade pattern. Each of these factors could provide a basis for exhaustive research, so it would be impossible to deal with all of the ramifications of each factor. However, a very poor analysis of any international oil company's operations would result if these factors were not taken into account.

A. Ownership and Control of Oil Operations

Currently, the U.S. Government is conducting a civil suit against five U.S. petroleum companies. This suit is based mostly upon a report made by the Federal Trade Commission, which was released in August 1952. This report has a large number of charts and tables showing the high degree of control that is concentrated in seven international petroleum companies; namely, the four parent companies of Aramco: the Gulf Oil Corporation, the Anglo-Iranian Oil Company, Ltd., and the Royal-Dutch Shell group. In 1949, these seven companies, through their various integrated subsidiaries, owned 65 per cent of the world's estimated crude reserves. Excluding Russia and Mexico whose petroleum operations are government controlled and the U.S. where ownership is largely decentralized, these seven companies controlled about 92 per cent of the estimated crude reserves. By virtue of owning most of the world's known reserves, the companies accounted for over 50% of the world's crude production (excluding

Russia) and about 99% of the production in the Middle East. The map on the following page shows some of the major concessions in the Middle East and the ownership of these concessions. In addition, the companies also control over one-half of the world's crude-refining and cracking capacity.^{41.}

Besides the high degree of control which it is possible for these companies to exercise, they are also linked closely by a vast and complicated network of interlocking directorates. There is a vertical integration of the numerous subsidiaries which permits control from the exploration stage to the final marketing of the products to the consumers.

This high degree of concentration has arisen, primarily, because only the major companies had sufficient capital to bet against the many hazardous risks that are inherent in any foreign oil venture. Obviously, this degree of concentration must have many and varied effects on international petroleum operations. Whether or not this concentration of ownership has resulted in an international cartel with sufficient control to set petroleum prices and movements with no dependency on normal supply and demand is for the U.S. courts to decide. However, it must be recognized that each of the parent companies of Aramco have extensive interests in all parts of the world and their individual decisions, at least, will reflect this condition.

B. Base-Point Pricing System

The base-point pricing system is used in several industries. Because of its seemingly unfairness, it has been a very contro-

41. The International Petroleum Cartel, op.cit., p. 23 ff.

1951 CONCESSION DATA

IRAQ PETROLEUM COMPANY
CONCESSION:
 TERM - 75 YEARS FROM MARCH 14, 1925
 AREA - PROVINCES OF BAGHDAD AND MOSUL EAST OF THE TIGRIS RIVER (APPROX. 32,000 SQ. MI.) EXCEPT FOR KHANAQIN CONCESSION
 EXPIRES 2000
OWNERSHIP:
 ANGLO SAXON PETROLEUM CO., LTD. 23.75%
 (SUBSIDIARY OF THE SHELL GROUP)
 D'ARCY EXPLORATION CO. 23.75%
 (SUBSIDIARY OF ANGLO-IRANIAN OIL CO., LTD.)
 C.I.E. FRANCAISE DES PETROLES (FRENCH GOVT.) 23.75%
 NEAR EAST DEVELOPMENT CORP. 23.75%
 (STANDARD OIL CO. N.Y. - 50%)
 SOCONY VACUUM OIL CO. (INC - 50%)
 PARTICIPATIONS AND INVESTMENTS, LTD. 5.00%
 (C. I. GULBENKIAN) 100.00%

BASRAH PETROLEUM COMPANY, LTD.
CONCESSION:
 TERM - 75 YEARS FROM NOVEMBER 30, 1938
 AREA - ALL OF IRAQ NOT COVERED BY I.P.C., MOSUL AND KHANAQIN CONCESSIONS
 EXPIRES 2013
OWNERSHIP:
 SAME AS IRAQ PETROLEUM CO.

MOSUL PETROLEUM COMPANY, LTD.
CONCESSION:
 TERM - 75 YEARS FROM MAY 10, 1938
 AREA - ALL OF IRAQ WEST OF THE TIGRIS RIVER AND IN THE LATTER CONCESSION, MOSUL AND KHANAQIN CONCESSIONS
 EXPIRES 2013
OWNERSHIP:
 SAME AS IRAQ PETROLEUM CO.

TRANS-JORDAN PETROLEUM CO., LTD.
CONCESSION:
 TERM - 75 YEARS FROM MAY 10, 1938
 AREA - ALL OF TRANS-JORDAN AND TERRITORIAL WATERS
 EXPIRES 2013
OWNERSHIP:
 SAME AS IRAQ PETROLEUM CO.

ANGLO-IRANIAN OIL COMPANY, LTD.
CONCESSION:
 TERM - 60 YEARS FROM MAY 20, 1922, BUT STATUS OF CONCESSION AT PRESENT IN DISPUTE
 AREA - (10,000 SQ. MI.)
OWNERSHIP:
 BRITISH GOVERNMENT 49%
 BURMAN OIL CO. 25%
 OTHER (INDIVIDUALS) 26%
 100%

KHANAQIN PETROLEUM COMPANY
OWNERSHIP: ANGLO-IRANIAN OIL CO., LTD.

SINCLAIR PETROLEUM COMPANY
CONCESSION: ALL ETHIOPIA
OWNERSHIP: SINCLAIR OIL CORP.



ARABIAN AMERICAN OIL COMPANY
CONCESSION:
 TERM - ORIGINAL AREA - 40 YEARS FROM JULY 15, 1933
 ADDITIONAL AREA - 40 YEARS FROM JULY 27, 1933
 AREA - APPROXIMATELY 40,000 SQ. MI.
 EXPIRES 1980
OWNERSHIP:
 STANDARD OIL COMPANY OF CALIFORNIA 30%
 THE TEXAS COMPANY 30%
 STANDARD OIL COMPANY (NEW JERSEY) 10%
 SOCONY VACUUM OIL COMPANY, INC. 30%
 100%

BAHRAIN PETROLEUM COMPANY, LTD.
CONCESSION:
 TERM - 40 YEARS FROM JUNE 10, 1934
 AREA - ALL BAHRAIN AND TERRITORIAL WATERS
OWNERSHIP:
 STANDARD OIL COMPANY OF CALIFORNIA 30%
 THE TEXAS COMPANY 30%
 100%

KUWAIT OIL COMPANY, LTD.
CONCESSION:
 TERM - 75 YEARS FROM DECEMBER 23, 1934
 AREA - ALL OF KUWAIT (APPROX. 6,000 SQ. MI.)
 EXPIRES 2010
OWNERSHIP:
 D'ARCY EXPLORATION COMPANY (SUBSIDIARY OF ANGLO-IRANIAN OIL CO., LTD.) 49%
 GULF EXPLORATION COMPANY (SUBSIDIARY OF GULF OIL CORP.) 26%
 100%

AMERICAN INDEPENDENT OIL COMPANY
CONCESSION:
 TERM - 60 YEARS FROM JUNE 20, 1944
 AREA - ALL OF SHAIKH OF KUWAIT'S UNDIVIDED HALF INTEREST IN SAUDI ARAB - KUWAIT NEUTRAL ZONE INCLUDING ISLANDS AND TERRITORIAL WATERS (APPROX. 1,800 SQ. MI.)
OWNERSHIP:
 J. S. ABERCROMBIE ASHLAND OIL AND REFINING CO.
 RALPH K. DAVIES
 DEEP ROCK OIL CORP.
 HANCOCK OIL CO.
 PHILLIPS PETROLEUM CO.
 SIGNAL OIL AND GAS CO.
 SUNRAY OIL CORP.

PACIFIC WESTERN OIL CORP.
CONCESSION:
 TERM - 60 YEARS FROM FEBRUARY 20, 1940
 AREA - ALL OF THE KING OF SAUDI ARABIA'S UNDIVIDED HALF INTEREST IN SAUDI ARAB - KUWAIT NEUTRAL ZONE INCLUDING ISLANDS AND TERRITORIAL WATERS
OWNERSHIP:
 J. PAUL GETTY INTERESTS

INTERNATIONAL MARINE OIL CO., LTD.
CONCESSION:
 AREA - OFFSHORE AROUND QATAR PENINSULA
OWNERSHIP:
 SUPERIOR OIL CO. OF CALIFORNIA 50%
 CENTRAL MINING AND INVESTMENT CORP., LTD. 50%
 100%

* Source: Arabian American Oil Company, Middle East Oil Developments (New York: 1952), p. 13.

(45.)

versial issue for many years. In simple form, this system establishes a base point in a certain geographical area. It is usually located at a recognized point where the particular product is mostly produced. Then, when the product is sold in an area other than the base point area, a freight charge is added to the recognized price at the base point. Thus, a producer operating closer to the selling market than the base point still sells his product at the prevailing rate, which is the base point price plus freight from the base point. Since the producer operating closer to the market doesn't really have to pay quite as much freight, he makes a higher profit because of "phantom" freight. In the opposite case, when the selling market is closer to the base point than it is to the producer, the producer makes less profit because he must meet the base point price and also pay--or "absorb"--additional freight charges.

In the case of petroleum, the U.S. Gulf Coast emerged as the base point. During the long period prior to World War II, the United States supplied almost all of the world's petroleum needs; hence, the Gulf Coast also became the base point for almost all international petroleum trade. The "Gulf" price is indirectly determined by state government commissions acting in conjunction with the Department of Interior. For example, the Texas Railroad Commission, which controls all of the oil and gas wells in Texas, is one of the most important factors in our domestic oil supply. This commission has the legal power to regulate all of the oil production in Texas, the major source of oil in the United States. Each month, this commission decided on the "allowables," or the amount of oil each Texas well can take from the ground. There

are similar controlling bodies in the other oil-rich states, and the combination of their decisions--adjusting the supply to the demand--determines the crude prices within a narrow range in the competitive U.S. industry. This indirectly predetermined-price meant that the "Gulf" price for domestic and international trade was also determined by the state commissions.

Since the war, the United States has changed from the world's chief supplier to a net importer, and the Middle East and the Caribbean have become the major net exporters. This sudden switch has modified the previous single base-point system into a triple base-point system; namely, the U.S. Gulf, the Caribbean, and the Middle East. This new system is still in a period of transition. There is a strong relationship between the three base point prices, but the U.S. Gulf price is still the dominating factor and will probably continue to set world prices in spite of U.S. production being effectively removed from international trade.

C. Oil Tankers

As noted above, the freight charges play an important role in the final delivered price of petroleum. The oil tankers are the major component of the freight charges in conducting international trade. The determination of tanker freight charges has become extremely complicated in recent years, which adds additional difficulties to the also complex basing point system. Early in World War II, the United States Maritime Commission established a set of tanker rates for its own sizable tanker fleet. Although their rates have very little significance today,

their designation is still used by the oil companies for the convenience of standardization. Thus, today, tanker rates are usually quoted as USMC plus or minus a certain percentage.

The complex nature of tanker rates arises from the fact that tankers may be chartered either for a single voyage or for a time charter from two to ten years, or the tankers may be owned by the oil companies themselves. The single voyage rate, or spot tanker rate, is naturally the highest and has high price fluctuations; therefore, they only comprise about ten per cent of the total tanker voyages. The time charter rates are established semi-annually by a board of independent brokers that meet in London. The major oil companies own and operate a very substantial number of tankers. The freight charges used by the individual companies may have a wide disparity depending upon which freight rate they use. For instance, Socony-Vacuum usually used the two-year time charter rates; Caltex usually used the USMC rate; and Jersey Standard uses its own formula that depends on a combination of the various rates.

Since the war, many new tankers have been built and designed. For purposes of comparison, all tankers are converted to an equivalent number of the war-time, T-2 tankers. The T-2 tanker had a capacity of 16,765 deadweight tons or about 135,000 barrels of crude. It had a speed of 14.5 knots and carried a crew of 43 men.^{42.} After the war, there was a critical shortage of tankers due to wartime sinkings, natural depreciation, and very little construction during the war years. However, a large construction program was started after the war to relieve

42. "An Analysis of World Tank Ship Fleets," Marine News, Vol XXXIX (April 1953), p. 20.

this critical shortage. Table III shows the increase from 1945 to 1952, and the number expected in 1957 under the present scheduled construction program and assuming a full scrappage rate on a 20-year tanker-life.

43.

Table III.

<u>Date</u>	<u>T-2 Equivalents</u>	<u>Per Cent Gain</u>
September 1945	1,264.5	---
April 1951	1,544.1	36.6%
October 1952	1,726.8	11.8%
January 1957	2,409.4	39.5%

In October 1952, tanker demand was about equal to the tanker supply, yet the construction program shows an average 6.5% yearly gain in the tanker supply between 1952 and 1957. In the same period, petroleum demand is only expected to increase at a yearly rate of 4%. There are also several proposed pipe lines that should decrease the tanker demand. So, the tankers should be in oversupply during the next few years, and this should reflect itself in decreased tanker rates. The first indication of this fact occurred in February 1953, when Socony-Vacuum reduced its f.o.b. price for crude oil at Sidon, Lebanon due to the decreased tanker rates.

Tanker rates are extremely important in the Middle East prices because of its relative isolation from the large consumption areas. Table IV shows the number of tankers employed in the Middle East and their destinations in 1950.

43. Ibid, p. 20.

44.
Table IV.

<u>T-2 Tankers from Persian Gulf to-</u>	<u>Crude Oil</u>	<u>Products</u>	<u>Total</u>
East Coast, USA	84	----	84
Europe & Near East	235	107	342
Oceania (Hawaii)	1	33	34
South & East Asia	7	37	44
Latin America & Caribbean	22	2	24
Canada	25	----	25
South & East Africa	----	<u>18</u>	<u>18</u>
TOTAL	394	197	591

There was a total world fleet of 1208 T02 equivalent tankers in 1950; therefore, the Middle East alone required 47% of the world's total tanker fleet.

The world's tanker fleet, like the world's known reserves, is also substantially owned or controlled by the petroleum companies as shown below.

In October 1952:

32.9% of the world fleet was owned by oil companies.

55.4% of the world fleet was owned by non-oil companies.

11.7% of the world fleet was owned by the governments.

Of the 395.3 T-2 equivalent tankers that were privately owned in the United States, 272.2 or 68.9% were owned by U.S. petroleum companies. Jersey Standard was the largest single owner, having 45.57.4 T-2 equivalent tankers.

44. Benedict Saurina, "World Tanker Fleet," World Oil, Vol. CXXXVI (February 15, 1952), p. 274.

45. Marine News, op.cit., p. 20.

D. The Dollar Gap

There has been a dollar gap for the last 75 years, since the United States has been a net exporter of goods. However, it has only become critical in the post war period. For the purposes of international trade, the difficulties are primarily centered in the dollar-sterling problem. Approximately one-half of all international payments are settled in sterling. The importance of the sterling-dollar problem can be appreciated when it is remembered that petroleum and its products constitute the largest single item in international trade and that the ownership and control of oil in international trade is preponderantly British and American.

Essentially, there is a dollar shortage in the sense that foreign countries are not earning as many dollars as they need to settle their dollar obligations. Prior to World War II, the problem was not critical since much of the trade unbalance was offset by income on foreign investments located in the United States and other dollar areas. During World War II, our allies had to rely heavily on lend-lease from the United States and the liquidation of their foreign assets in order to finance the war. After the war, the following over-simplified condition increased the dollar gap: the great physical devastation that occurred during the war caused a heavy inflation, greatly restricting the export possibilities of the foreign countries; another reason is that the war did not really end at all but has continued at various degrees of intensity, thus prohibiting the foreign countries from devoting all of their resources to

increasing their export trade to the proper balance. The consequence of these factors is that the foreign countries have had to spend their much-needed income on defense projects and have had to rely on the United States for food, raw materials, capital equipment, and other goods required for survival as well as for reconstruction and rehabilitation. They have had to spend more dollars than they have earned, and the E.C.A. grants and loans and other relief programs have been used to bridge the dollar gap.

In addition to the above problems, Britain has had additional difficulties. The exceptionally heavy drain on her resources and her loss of many foreign investments caused her to incur many foreign debts, mostly in sterling, to other sterling countries. To prevent the rapid exchange of sterling for dollars, Britain had to impose drastic limitations on the free convertibility of sterling into dollars in order to retain her fast diminishing dollar resources. After the war, Britain had to drastically reduce imports from dollar areas in an attempt to repay her sterling debts. Britain had an extremely difficult time trying to build up her export surplus because of war destruction and obsolete equipment. The post war price inflation in Britain made it impossible for her to compete in the international market. The situation became so critical in the business slump of 1949 that she had to devalue her pound in order to meet international competition. However, the Korean situation and the consequent return of a better sellers' market, together with her drastic import measures, have gradually im-

proved Britain's financial position in the last two years.

This dollar gap and the dollar-sterling problem have had an immense effect on the international petroleum trade. From the British standpoint, oil is extremely important to the Empire as a whole. Oil resources under British control and the world-wide trading position of the Anglo-Iranian Company and the British-Dutch Shell group are immense assets to the British economic position. So the British naturally expected their oil assets to play a major role in their post war recovery. But despite Britain's strong crude supply position, the sterling area has regularly had to buy a substantial quantity of oil products from dollar areas in order to meet overall requirements. The main reason for this is that the British companies had never built sufficient refining capacity to supply their world-wide markets and the needs of the sterling area as well.

It was rather ironical that Britain had to spend a large proportion of her much-needed dollars for the one thing in which she might have been most self-sufficient. However, many countries outside of the sterling area which were forced to purchase dollar oil were also feeling the dollar shortage, and these countries represented potential new markets for British sterling oil as it could be made available. When these countries were in a position to supply Britain with food and raw materials that could be obtained otherwise only for dollars, there were advantages to be gained by both sides from bilateral trade agreements which substituted sterling oil for American dollar oil. Thus, expansion of its oil industry with special emphasis on

increased refining capacity became one of Britain's foremost objectives in its recovery program.

During this period of expansion, E.C.A. funds were sufficiently provided to avoid any financial disaster and to aid Britain in her expansion program. By the time of the business slump in 1949, the British capacity had finally been increased beyond the point to satisfy their customary markets. At this time, the British made several successful inroads to the customary American markets: for example, Egypt and Argentina, who were previously almost exclusively American markets. In November 1949, the British announced that their refining capacity had been increased to the point where they would have a product surplus of 75,000 b.p.d. above their normal market needs; and, in order to save dollars, they were going to use this surplus in the sterling area to replace an equivalent amount of American oil. To the American companies, this meant a cut of about 30% in their total sterling area business, and further cuts were indicated.^{46.} This presented a serious problem to American foreign oil interests. In 1949, there was the world-wide business slump and oil supply was exceeding oil demand. Also, because of certain exchange regulation agreements, it was practically impossible for dollar oil to compete with sterling oil. If the American foreign markets were substantially decreased, it would eventually mean decreased production which could endanger their oil concessions as many Middle East governments depended

46. H.D. Armstrong, "The Dollar-Sterling Problems," Addresses and Reports Delivered at the Thirtieth Annual Meeting, Vol. XXX, Section I (Los Angeles: 1950), p. 60 ff.

almost wholly on oil royalties for their existence. This situation was brought to the attention of Washington and many high-level conferences were held. The U.S. State Department became actively concerned as there were important questions of international diplomatic relations, protection of American foreign investments, world-wide military strategy, and the effect of huge potential oil surpluses on general business conditions to be considered.

Arguments were advanced to show that even British oil contained a substantial dollar component because some royalties had to be paid in dollars and a substantial amount of their supplies had to be purchased in dollar areas. Finally, the growing problem was alleviated in several ways: the British agreed to limit further expansion of their refining capacity; American companies made individual agreements with the sterling area countries by reducing the dollar component of dollar oil; the general reduction of the dollar gap due to improved conditions; and, finally, the increased oil demand because of the Korean situation.

There are counterparts of the dollar-sterling problem in all countries where American companies have marketing facilities; and, although the dollar gap problem is not critical at the moment, the above listed alleviating factors represent only temporary conditions. Therefore, the major oil companies have been very busy in the last two years, negotiating with the individual governments. Many agreements have been signed that are designed to provide a long-term solution to the dollar gap problem, and only time will tell if these agreements will be adequate to

eliminate the dollar problem in world oil trade. ^{47.}

E. Political Factors

Many political factors have already been mentioned with regard to obtaining foreign concessions, the dollar gap problem, the petroleum pricing system, and Aramco's development. In this section, only a very small number of the current political factors that may affect the future petroleum price and distribution will be discussed.

Probably the greatest political factor involves the sudden shift from a peacetime economy to a wartime economy, or vice versa, and also a situation such as the "cold war" that exists in the world today. There are enormous problems linked with this shift in the petroleum industry. Not only may the oil demand take a sudden change, but the principal supply areas--such as the Middle East--may be completely lost. If war occurs, there may be a great shift in the areas of greatest demands which could greatly overburden the petroleum industry's transportation facilities. There are so many possible changes that war time transition could cause that the subject will not be explored in this paper.

One of the major factors determining crude oil movements is the location of the refineries. The determination of these locations is influenced by several factors. The historical experience of American oil interests in engaging in foreign refining are primarily in four categories:

- (1.) Where local refining was attractive on a purely economic basis exclusive of artificial regulations; e.g., where there is local crude production and

either a local or a tributary product market that can be supplied more economically by local refining than from any other source.

(2.) Where local refining was not attractive on a purely economic basis but was made so by a tariff against imports. This situation occurs in locations where there is no local crude oil supply but where--for reasons of local labor, national defense, or currency situation--the local government offers protection to local refining as against importation of products. This type of situation is precarious because tariff laws can be changed on short notice and, with local protection removed, the local refinery becomes uneconomical.

(3.) Where local refining was not attractive on a purely economic basis but was forced by means of a high protective tariff and a system of import licences.

(4.) Where local refining was forced in countries having large crude oil reserves either developed or potential by making refining obligatory as a part of securing or holding concessions for exploration and
47.
development.

The European refinery expansion was mostly the result of the third type, while refinery construction in the Middle East was primarily due to the fourth type. Thus, the governments of consumption areas represent opposite views from the governments of the excess-supply areas. The oil company is,

therefore, caught in the middle of these two conflicting interests, and it must resolve many ticklish problems by compromises with the various governments.

One of the major fears of an oil company operating in foreign countries is the threat of nationalization, such as the one that occurred to the Anglo-Iranian Company in Iran recently. The oil industry in Iran was nationalized in the summer of 1951, and it has caused some unexpected problems. When the Iranian oil was removed from world trade, a tremendous deficiency in the world supply occurred. This deficiency was rapidly overcome by increased production by the other major oil companies. Now these two serious problems are facing the petroleum industry. The first problem is what will happen if the British regain their concession. The other major companies now supply the former outlets of the Anglo-Iranian Company, and serious problems could arise in adjusting new outlets when Iranian oil returns to the picture. The second problem affects the entire pricing system of the petroleum industry. At present, the Iranian Government is trying to produce and refine its own oil. In an effort to gain market outlets for its production, the government is deviating from petroleum price structure and offering its oil to other countries at a price considerably less than the prevailing price. Most countries are afraid to accept this oil from Iran because they are afraid of damaging friendly relations with the British. However, several countries have ordered this low-price oil, and so the Iranian Government could greatly change the existing price and supply pattern if it attains sufficient production and gains general acceptance from other countries.

VI. Aramco Price Analysis

A. Production Costs

In any discussion of the petroleum industry today, one of the most controversial subjects is the cheap production costs of Middle East oil in comparison with the production costs in the United States. In the first part of this chapter, a comparison will be made between these two costs. However, it appears that a comparison of production costs in Saudi Arabia alone, with the U.S. Production costs will give a poor basis for the determination of the price for Arabian crude. The price of Arabian crude is admittedly not based primarily on the production costs of the Arabian crude. The price is computed by the parent companies on the basis of a reasonable return on the investments made all over the world.^{48.} In other words, the parent companies of Aramco would charge a price (compatible with demand) that would yield a high profit on their Aramco investment to make up for loss of investments incurred in other parts of the world.

The Abqarq field is Aramco's major producing field. It has been exploited in a manner that gives a much higher efficiency than any field in the U.S. could attain. Instead of drilling wells all over the field as it has to be done in the U.S. because of wide ownership of the land, Aramco has set up 57 wells in a semi-circle around an area of 50,000 acres. At present, the water and natural gas pressure is sufficient to produce free flow of the oil at a rate exceeding 5,000 b.p.d. for each well.^{49.} And excluding initial failures in its early

48. Hearings Before a Special Committee Investigating the National Defense Program, Part 41, op.cit., p. 24896.

49. T.J. Kelly, "The Oil of the Middle East," Vital Speeches of the Day, (July 1, 1951), p. 34.

history, Aramco very seldom drills a dry well. In the U.S., on the other hand, there may be several wells to the acre and the average production, with forced natural gas pressure, is only around 12 b.p.d. Also, out of the 20,000 wells that are drilled in the U.S. each year, about one-fourth are dry. Even though the Arabian wells cost about twice as much to drill as the U.S. wells (\$300,000 to \$125,000), it is easily seen that a productive field in the Middle East is far cheaper to drill for the same capacity than a field in the U.S.^{50.} The question of relative labor costs is difficult to compare accurately. Aramco employs about 14,500 Arabs with a starting pay of 92¢ a day, and about 2,500 skilled American labor at a rate of approximately twice their domestic wages.^{51.} Some petroleum antagonists maintain that this excessive cheap labor is a major factor contributing to low production costs. The Aramco officials, however, say that the cheap labor is in reality more expensive in spite of the low wage rates by U.S. standards. They maintain they must spend a large amount of money for various training programs and still the labor output is very small for the totally unskilled Arabs. In addition, they must provide personnel transportation back and forth to the U.S. for the American workers and their families. They also have to provide lodgings, other necessities of life, and some luxury items to entice high caliber American workers to Saudi Arabia. On this basis, it would appear that there is no

50. Hearings Before a Special Committee Investigating the National Defense Program, Part 41, op.cit., p. 25298.

51. Ibid., p. 24961.

substantial difference of labor costs between the United States and Saudi Arabia.

In 1947, the estimated direct production costs were 24¢ a barrel plus the 21¢ royalty to the Saudi Arabian government--a total of 45¢ per barrel.^{52.} In addition, it was estimated for every dollar spent on direct production costs, a \$120 was spent for other indirect costs.^{53.} This figure would give a total production cost of 53¢ (24¢ plus 29¢) plus 21¢ royalty--a total of 74¢ per barrel prior to 1948 when the royalty was increased to 34¢ a barrel. However, the ratio--1.2 to 1--of indirect costs to direct costs was estimated in 1952, and the ratio is probably much smaller for the years prior to Aramco's expansion program in 1947. This smaller ratio would thereby decrease Aramco's total production cost prior to 1947. Because it is not certain which different components are included in estimating this ratio, there may be some duplication of various factors which would effect the value of this ratio, and thereby reduce the accuracy of the total production cost.

B. Prices Prior to Tapline.

In the period before the end of World War II, almost all of Aramco's crude oil went either to Bahrein Island for refining or else it was used in local consumption. Except for a long-term contract for crude oil to Japan prior to 1941, this condition existed until the end of the war. The crude oil sold to Japan was priced at 86¢ per barrel, f.o.b. Ras Tanura.^{54.}

52. Ibid, p. 25009.

53. D.M. Duff, A Series of Articles about the Arabian American Oil Company, op.cit., p. 15.

54. Hearings Before a Special Committee Investigating the National Defense Program, Part 41, op.cit., p. 24847.

During the war, the first major break in the single base point system at the U.S. Gulf occurred. The British Navy was purchasing large amounts of oil in the Middle East. Because of Britain's poor financial position at the time, the government strongly objected to paying the "phantom" freight from the U.S. Gulf Coast on oil purchased in the Middle East. In its negotiations with the Anglo-Iranian Oil Company, the British obtained an agreement that effectively started the dual base point system. The oil company set its price so that its crude oil price was the same f.o.b. Persian Gulf as comparable crude f.o.b. U.S. Gulf. This policy effectively eliminated the "phantom" freight rate from the U.S. Gulf to the Middle East. This policy also determined the future price pattern in the early post war years.

In 1945, two factors appeared that had an important influence on the future trend of the Persian Gulf base price. The first was the rapid increase in Middle East output and its large scale entry into world trade. The second was the rapid series of price increases that occurred in the U.S. after the removal of the war-time price ceilings. In 1945, Aramco contracted to sell crude to the U.S. Navy at \$1.05 per barrel, f.o.b. Ras Tanura. This was also the low quoted on the U.S. Gulf for comparable crude. This meant that Aramco in its first large postwar contract was establishing the practice of equalizing the base prices of the Persian Gulf and the U.S. Gulf. By equalizing the two base prices, Aramco effectively equalized

the delivered price in the Mid-Mediterranean Sea, because this point was an equal distance by tanker from Ras Tanura and the U.S. Gulf. This price remained constant until March 1947, when several new developments occurred that caused a series of changes in the price of Arabian Oil.

This was the period of the initial agreement to admit Socony-Vacuum and Jersey Standard into Aramco. This meant that Aramco crude and its products would be sold to three marketing subsidiary companies instead of only selling to Caltex. By this time, Aramco had increased its production sufficiently to enable it to enter new markets. Fortunately, this was also the time when E.R.P. funds began to flow to Europe, and its consequent refinery expansion began. To enable Aramco crude to enter Europe on a competitive basis with Venezuelan crude, it would be necessary to reduce the Middle East base price below that of the U.S. Gulf. However, this reduction became unnecessary as the U.S. Gulf price began its rapid series of increases. The U.S. Gulf price increased to such a high degree that the Aramco was also able to increase its base price by smaller proportion and, also, move the point of equalized delivered prices from the mid-Mediterranean to the British Coast. There was a considerable time lag in the various base prices of the three marketing companies during this series of increases. But by July 1948, all of the marketing companies of Aramco were charging the same base price. In this period from 1945 to July 1948, the Middle East base price had increased \$.83 while the U.S. Gulf price had increased \$1.40. On the basis of the straight USMC rates,

the delivered price in the United Kingdom was now the same for crude oil delivered from the Persian Gulf and the Caribbean area. The prices were as follows in July 1948 for 36° A.P.I. gravity crude.

56.
From--

U. S. Gulf.....	\$2.75 (f.o.b.) plus \$1.01 (USMC)=	\$3.76
Caribbean Area...	\$2.65 (f.o.b.) plus \$0.86 (USMC)=	\$3.51
Persian Gulf.....	\$2.07 (f.o.b.) plus \$1.44 (USMC)=	\$3.51

This comparison shows that theoretically the U.S. companies were effectively eliminated from the European crude market even if there was an excess available for export. And, theoretically, the Caribbean and the Middle East were on equal terms as far as European and Britain competition were concerned. After July 1948, there were two further reductions in the Middle East base price while the Caribbean base price remained approximately the same. These reductions effectively placed Middle East oil in a better competitive position in the European markets than the Caribbean area now had. The general changes of the Persian Gulf base prices are shown below.

57.

Period	Base Price, f.o.b. Ras Tanura for 36° A.P.I. Gravity
September 1945	\$1.05
June 1948	\$2.22
July 1948	\$2.07
April 1949	\$1.88
September 1949	\$1.75

6. Select Committee of Small Business, House of Representatives, 81st Congress, 1st Session, "Hearings Pursuant to H. Res. 22, A Resolution Creating a Select Committee to Conduct an Investigation of Problems of Small Business--Effects of Foreign Oil Imports on Independent Domestic Producers, Part 2, p. 539.
7. Ibid, p. 539.

It is hard to determine the significance of these Persian Gulf prices because of the episode that occurred in the summer of 1949, when there was a shortage of oil on the U.S. East Coast. During this period, a large quantity of Arabian crude was exported to the U.S. and was sold at the prevailing price at that point. At that time, crude was being sold on the East Coast for \$4.79 per barrel and the spot tanker rate from Ras Tanura to New York was approximately \$3.39 per barrel. In order to meet this price, the base price at Ras Tanura was effectively \$4.79 - \$3.39 - \$.10 (U.S. Tariff) or \$1.30 instead of the \$1.88 that was listed at the time.^{58.} The final Ras Tanura base price of \$1.75 has remained constant up to the present time, but there have been other instances where the marketing companies have effectively used a different base price by absorbing the freight rate. During the same period, the constant for the ownership of Aramco became permanent. After the ownership became permanent, a long-term contract was drawn up between Aramco and its parent companies that established a price of \$1.43 per barrel for all crude sold by Aramco to its parent companies or their marketing subsidiaries.

58. New York Times, C. Tapline

In December 1950, Tapline began its operations which were to bring the oil fields of Saudi Arabia some 3,500 miles nearer to the markets of Western Europe. This 1,068 mile pipeline saved approximately 7,000 miles of sailing by 65 tankers taking 20 days to make the round trip from Ras Tanura

58. New York Times, August 22, 1952, p. 25.

to Sidon, Lebanon. The pipeline was capable of handling 300,000 b.p.c. of Arabia's crude, or almost half of Aramco's production. The pipeline had to traverse three countries besides Saudi Arabia; namely, Lebanon, Syria, and the Hashimite Kingdom of the Jordan. Individual contracts had to be negotiated with each of the latter three countries. Besides certain agreements to supply local needs at the lowest prevailing rates, Tapline agreed to pay each of the three countries the same royalty rate for the amount of crude that moved through Tapline. The amount of this royalty was \$7.00 per metric ton, or 4¢ per barrel, to each country.^{59.} This gives a total royalty rate of 12¢ for each barrel of crude passing through Tapline. The estimated cost of transporting oil through Tapline is about 18¢ per barrel.^{60.} Therefore, the total operating cost is an estimated 30¢ per barrel.

It might be well to mention again the fact that Aramco's original royalty payments were changed at this time. Instead of receiving a fixed 34¢ royalty per barrel, the Saudi Arabian government was now to receive payments totaling 50% of Aramco's profits after taxes were paid to the U.S. Government. This profit is determined from the price that Aramco sells its crude and products to the marketing subsidiaries of the parent companies. This new royalty procedure naturally makes the Arabian Government try to increase the \$1.43 price that Aramco now uses to sell to the marketing companies.

59. K.S. Twitchell, op.cit., p. 200.

60. Hearings Before a Special Committee Investigating the National Defense Program, Part 41, op.cit., p. 24898.

On December 2, 1950, when Tapline began its operations, Socony-Vacuum made the first public posting of Middle East prices. Although previously the prices were readily available, this first public posting gave the prices an official written record. The parent companies quoted the following prices for 36[•] A.P.I. Gravity crude:^{61.}

	<u>f.o.b. Ras Tanura</u>	<u>f.o.b. Sidon</u>	<u>Difference</u>
Socony-Vacuum	\$1.75	\$2.41	\$.66
Jersey Standard	\$1.75	\$2.55	\$.80
Caltex	\$1.75	\$2.45	\$.70

The USMC rate from Ras Tanura to Sidon is \$.70, including the Suez Canal toll of 18¢ per barrel. This was the basis from which Caltex computed its Sidon price. Jersey Standard used its own formula which is based on several types of freight rates. Socony-Vacuum used the two year time charter rates. Within a few days after Socony's Sidon posting, the remaining three companies reduced their Sidon price to match Socony's price. Therefore, the Sidon price was based wholly upon the tanker freight rate of 66¢ when the actual pipeline freight rate was around 30¢, representing an additional profit of 36¢. Although this 36¢ figure does not include any amortization charges or risk of investment factors, etc.--it is clearly a source of additional high profits for the parent companies. Because of the huge markets in the area west of the Suez, the majority of the crude must still be supplied by tankers from the Persian Gulf.

61. D. M. Duff, "Middle East Postings," Oil and Gas Journal, Vol. XXXIX (December 7, 1950), p. 67.

Until such time when there is sufficient pipeline capacity from the Persian Gulf to the Eastern Mediterranean Sea to supply most of the West of Suez area, the Sidon price will probably be linked more closely to the tanker freight rates instead of the pipeline operation costs. Otherwise, the Ras Tanura f.o.b. price would be reduced by absorbing the freight, or there would be discrimination between the various markets to determine which would receive the benefit of the lower pipeline costs. When sufficient pipeline capacity to the Mediterranean is attained, the East Mediterranean is expected to replace the Persian Gulf as the Middle East basing point.

Since the completion of Tapline and other crude pipelines throughout the world, the tankers that were formerly in short supply are now in an excess supply. This depression in the tanker market has permitted Arabian crude to compete in an ever-increasing area. The tanker rates for charter voyages from the Persian Gulf to the United States have declined from as much as USMC plus 150% to USMC minus 40%. This has allowed Arabian crude to move to the United States in increasing quantities--both to the East Coast and to the West Coast. For example, in January 1953, the rate from the Persian Gulf to the U.S. East Coast was \$1.34 per barrel (USMC minus 20%) for 36° A.P.I. Gravity crude. This gave a laid-down price in New York of \$1.75 plus \$1.34 plus 10.5¢ (duty) or a total of \$3.19.5 per barrel to compare with the laid-down price of West Texas crude on the East Coast of \$3.20.⁶² A similar development

62. "Middle East-West Texas Sour Crude on Break--even Cost Basis to East," National Petroleum News, Vol. XXXV (January 14, 1953), p. 40.

is occurring on the West Coast, where there is a heavy shortage at present. Arabian 35° A.P.I. crude has a present tanker rate from Ras Tanura to Los Angeles of \$1.32 per barrel (USMC minus 40%). Therefore, total cost is \$1.73 plus \$1.32 plus 10.5¢ or \$3.15.5. This is 29¢ higher than California crude, but it is 13.5¢ lower than Canadian crude to Los Angeles.^{63.} Because of the lessening of the freight differential between the Persian Gulf to Europe and the Eastern Mediterranean to Europe, resulting from the declining tanker freight rates, the price of Arabian crude has been reduced 12¢ to a \$2.29 Sidon base price.

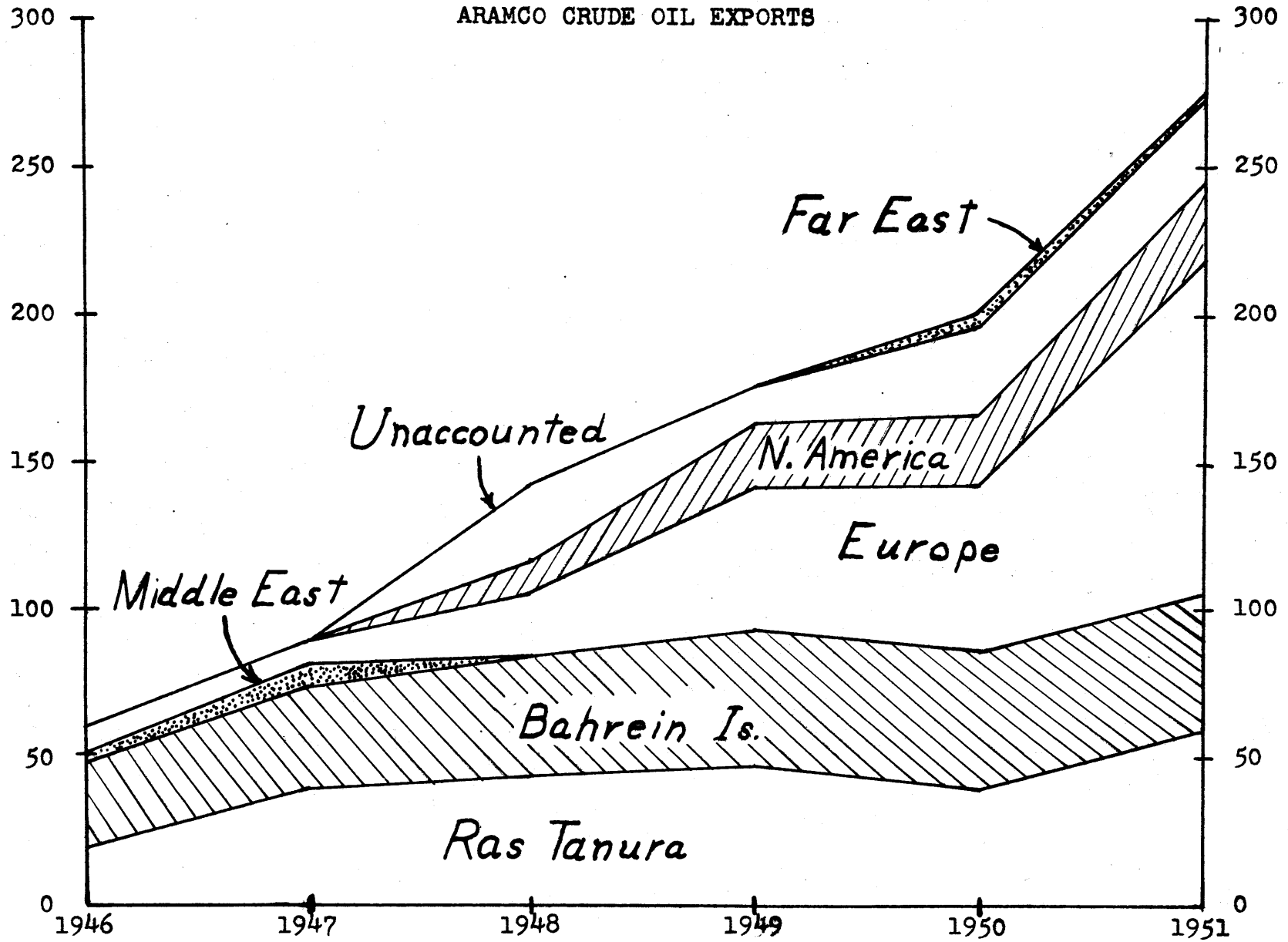
Walter Levy, a prominent petroleum economist, has predicted that when the present transitional supply and demand relationships have finally evolved, the Middle East crude oil price, f.o.b. Eastern Mediterranean, will probably be determined by a fluctuation between a low which will allow Middle East crude to compete with U.S. and Caribbean crude on the U.S. East Coast and a high which would allow Caribbean crude to compete with Middle East crude in Western Europe.

63. "Mid East Crude to Los Angeles," National Petroleum News, Vol. XXXV (February 4, 1953), p. 63.

VII. Aramco Distribution

In general, the distribution of Aramco crude oil has followed the general pattern of Middle East oil. Aramco crude did not become an important factor in world trade until 1947, when it began its rise to the largest single crude producer in the world. The graph on the following page shows the general trend of Aramco's distribution of crude oil to the different regions of the world from 1946 through 1951. Exports to South America are not shown because of the very small quantity that moved in that direction. However, this situation may change if the dollar-sterling problem is favorably resolved for Aramco's distributors. In addition, a refinery is being constructed in Brazil with a capacity of 20,000 b.p.d. It is being designed to operate on Persian Gulf crude, mostly supplied by Aramco. If tanker rates continue at their low level, South America may become a substantial outlet for Middle East crude which is desperately looking for new outlets. The European market has already undergone its major expansion and any future increases will be probably be small. In fact, Aramco's share of the European market may possible have a serious decline if Iranian oil enters the world trade pattern under British control. The exports to the Far East will probably not increase substantially. This area is primarily supplied by the East Indies area and, in addition, extensive exploration is being conducted in this area which may enable it to become self-sufficient in its petroleum supply. At present, the major exports to this area are in the nature of refined products since there is relatively little refinery capacity. The exports of crude oil to areas within

ARAMCO CRUDE OIL EXPORTS

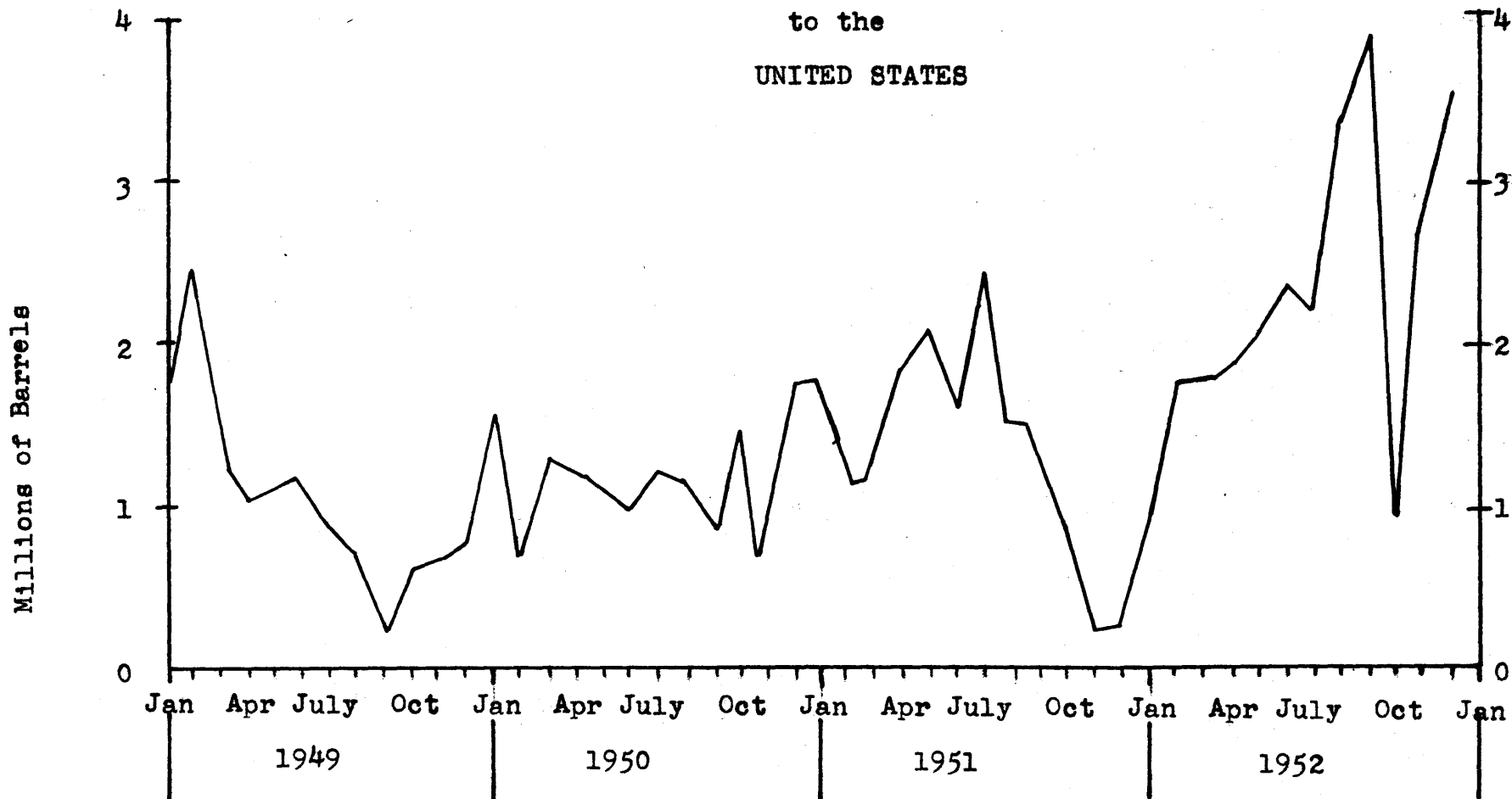


* Source: Table V, p. 76.

the Middle East will depend mostly upon the degree of industrial expansion that occurs within this area. Otherwise, there will be relatively little refinery expansion because it is not economically attractive, and the postwar refinery expansion has taken place in other areas because of political factors and the dollar gap problem. So, unless local governments make additional refinery construction a condition for obtaining or holding petroleum concessions, this area should remain stable or show only a slight increase. The unaccounted portion of the graph is relatively small in relation to Aramco's total production. A substantial part of this region could probably be accounted for in the losses that occur in transportation and also by the fact that Saudi Arabia and Aramco both use small portions of the unrefined crude.

The only exports to North America go either to the United States or Canada. Canada, herself, has recently discovered large amounts of oil and is now a net exporter of petroleum. Its imports from Aramco have remained fairly constant for the last three years and will probably decline as her own production increases. Middle East exports into the United States have become a very controversial subject within the last two years. The imports from Saudi Arabia alone were doubled from 1951 to 1952. The graph on the following page shows the monthly variations of Aramco imports from 1949 through 1952. In general, it shows a steady increase of the exports to the United States, except for a short period in 1951, when Aramco's oil went to other areas that were left oil-deficient because of the Iranian nationalization. The heavy increase of

ARAMCO EXPORTS
to the
UNITED STATES



* Source: Table VII, p. 80.

(73.)

73

U.S. imports in the last two years has been accompanied by like increases from other foreign countries. This condition has aroused some deep bitterness from domestic independent producers and the coal industry. They are very much alarmed over the possibility that foreign oil will supplant and not just supplement domestic production. Because of this fear, there is a definite possibility that Congress may pass more stringent import tariffs to reduce the amount of imports. In an attempt to appease the coal industry and the independent petroleum producers, the major companies will probably voluntarily restrict their imports from the Middle East to their present levels.

APPENDIX

Conversion Factors

- 1 Barrel = 42 U. S. gallons
 1 Metric Ton = 7.46 barrels (36° A.P.I. Gravity)
 1 Long Ton = 7.58 barrels (36° A.P.I. Gravity)
 1 Short Ton = 6.77 barrels (36° A.P.I. Gravity)

Yearly Aramco Production*

Number of barrels

1936 -	19,777	1944 -	7,794,420
1937 -	64,968	1945 -	21,310,996
1938 -	495,135	1946 -	59,943,996
1939 -	3,933,903	1947 -	89,851,235
1940 -	5,074,838	1948 -	142,853,000
1941 -	4,310,110	1949 -	174,008,000
1942 -	4,530,492	1950 -	199,547,000
1943 -	4,867,184	1951 -	277,963,000
		1952 -	302,571,000

* Source: Aramco, Annual Reports to the Saudi Arabian Government.

Table V.

Crude Exports from Saudi Arabia (1946-1951) *
in thousands of barrels

TO	1946	1947	1948
Argentina	604	1,339	n.a.
Australia	0	0	0
Bahrein Island	25,951	36,663	39,752
Belgium	105	244	n.a.
Canada	0	0	1,370 ^a
Canary Islands	247	760	n.a.
France	2,503	1,714	9,929
Indonesia	0	0	0
Israel	3,553	5,692	0
Italy	1,008	1,054	0
Japan	0 ^d	0 ^d	0 ^d
Netherlands	0	0	0
Portugal	0	0	0
Spain	0	0	0
Sweden	087	751	1,436
Union of South Africa	021	212	n.a.
United Kingdom	0	1,730	5,055 ^a
United States	0 ^b	623 ^b	10,695 ^b
Uruguay	107	221	933
West Germany	0	0	0
Yugoslavia	0	0	0
Known Exports	34,086	51,303	74,368
To Ras Ranura Refinery	29,297	39,065	43,450
To Sidon Refinery	0	0	0
TOTAL	63,383	90,368	117,818
Yearly Production	59,944	89,859	142,853
Unaccounted	3,439	509	-25,035

* The various sources are listed on page

Table V. (Continued)

Crude Exports from Saudi Arabia (1946-1951)
in thousands of barrels

TO	1949	1950	1951
Argentina	0	0	0
Australia	0	182	062
Bahrein Island	45,348	46,287	46,220
Belgium	353	n.a.	358
Canada	7,949	7,847	8,371
Canary Islands	n.a.	n.a.	n.a.
France	30,199 ^a	23,838	32,955
Indonesia	134	0 ^e	0 ^e
Israel	0	0	0
Italy	n.a.	15,767	26,073
Japan	151 ^d	2,185 ^d	n.a.
Netherlands	0	n.a.	3,950 ^f
Portugal	594	n.a.	2,698 ^f
Spain	0	n.a.	2,545 ^f
Sweden	1,736	2,296	650 ^f
Union of South Africa	n.a.	n.a.	n.a.
United Kingdom	6,400	7,957	29,605
United States	12,460	13,973	16,161
Uruguay	645	600	841
West German	7,852	5,220	9,571
Yugoslavia	0	127	114
Known Exports	113,821	126,079	180,174
To Ras Tanura Refinery	46,300 ^c	38,874 ^c	58,194 ^c
To Sidon Refinery	0 ^g	066 ^g	1,080 ^g
TOTAL	160,121	166,079	249,448
Yearly Production	174,008 ^c	199,547 ^c	277,963 ^c
Unaccounted	-13,887	-33,528	-28,515

Sources: the exports that are unlettered were obtained from the following publication:

U.S. Department of the Interior, Bureau of Mines, International Petroleum Trade, Vol. XV to XXII (Washington: Government Printing Office, January 1946 to March 1953).

The other exports were obtained corresponding to the lettered indications.

- (a.) U.S. Department of Commerce, "World Trade in Commodities," Petroleum and Coal, Vol. VII and VIII (Washington: Government Printing Office, February 1949 to August 1950).
- (b.) U.S. Department of Commerce by Bureau of the Census, U.S. Imports of Merchandise for Consumption, Report No. FT110, Monthly issues from March 1946 to March 1953 (Washington: Government Printing Office.)
- (c.) Arabian American Oil Company, Annual Reports to the Saudi Arabian Government (New York: Annual issues from 1946 to 1951).
- (d.) U.S. Department of Commerce, Bureau of Foreign and Domestic Commerce, "International Trade Statistics Series," Japanese Foreign Trade (Washington: Government Printing Office, August 1952), p. 9.
- (e.) U.S. Department of Commerce, Bureau of Foreign and Domestic Commerce, "International Trade Statistics Series," Indonesian Foreign Trade (Washington: Government Printing Office, July 1952), p. 4.
- (f.) United Nations, Department of Economic Affairs, Commodity Trade Statistics, Series D. No. 10 (New York: United Nations, June 1952), p. 23.
- (g.) "World Supply and Demand," World Oil, Vol. CXXXIV (February 15, 1952), p. 258.
- n.a. Not available

These excess exports over yearly production is probably due to errors in the various figures of the reporting countries.

Table VI.

(79.)

Aramco Operations

1936 - 1947 in number of barrels

	Production	Consumption	Runs to Stills	Exports to Bahrein	Other	Total Sales	Inventory, December 31
1936	19,777	19,077	----	----	----	----	700
1937	64,968	65,668	----	----	----	----	----
1938	495,135	28,503	----	455,754	----	455,754	10,878
1939	3,933,903	38,821	----	2,957,955	457,758	3,415,713	490,247
1940	5,074,838	58,042	104,397	4,313,262	840,390	5,153,652	248,994
1941	4,310,110	30,847	392,924	4,055,790	----	4,055,790	79,543
1942	4,530,492	73,986	----	4,429,719	----	4,429,719	106,330
1943	4,868,184	8,817	----	4,819,674	7	4,819,681	146,016
1944	7,794,420	32,386	350,774	7,146,335	----	7,146,335	410,941
1945	21,310,996	80,876*	3,452,363	15,676,815	1,206,274	16,883,089	1,305,609
1946	59,943,766	109,513	29,297,101	25,951,218	4,447,808	30,339,026	1,443,735
1947	89,851,646	121,597**	39,065,060	36,662,750	13,682,247	50,344,998	1,763,727
TOTAL	202,198,235	668,133	72,662,619	106,469,272	20,634,484	127,103,756	

(79.)

Table VII.

(207)

United States Imports of Crude Oil from Saudi Arabia*

1949 - 1952 in barrels

	1949	1950	1951	1952
January	1,742, 612	1,483,229	1,760,277	931,992
February	2,446,899	687,204	1,098,108	1,722,611
March	1,254,025	1,307,635	1,152,384	1,736,635
April	1,031,656	1,217,594	1,851,729	1,815,508
May	1,074,414	1,125,856	2,028,384	2,036,754
June	1,154,719	985,499	1,578,144	2,355,107
July	848,748	1,213,804	2,403,900	2,138,337
August	711,806	1,185,046	1,481,415	2,305,471
September	219,824	863,308	1,485,454	3,873,080
October	624,719	1,498,991	890,116	921,390
November	627,369	641,285	204,333	2,696,195
December	723,146	1,763,343	226,922	3,542,720
TOTAL	12,459,937	13,972,794	16,161,166	27,075,800

* Source: Department of Commerce, Bureau of the Census, U.S. Imports of Merchandise for Consumption, Report No. FT 110, Monthly issues from March 1949 to March 1953 (Washington: Government Printing Office).

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