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FOREIGN OIL AND AMERICAN SECURITY

By

Bernard Brodie

YALE INSTITUTE OF INTERNATIONAL STUDIES
Frederick S. Dunn, Director

New Haven, Connecticut
September 15, 1947

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Howard Kralie

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The politics of oil is one of dangerous confusion. Both the confusion and the danger stem from the fact that while petroleum is of supreme importance strategically as well as economically, there has been little effort to distinguish between the strategic and the economic interests involved. Nations have tended historically to interpret their "vital strategic interests" rather expansively. Although the United States has probably more often erred on the opposite side, it has not been wholly immune to fears which later proved unwarranted. That happens to have been especially true in issues concerning petroleum, as the record of American diplomatic relations in the early 'twenties amply demonstrates.

The United States has always been, and is bound long to remain, far the greatest consumer of oil in peacetime. And the military machine which it created in two world wars was geared to the same prodigal rate of consumption. The United States has also thus far furnished the major part of the world's supply of petroleum, but its ability to continue to do so or even meet its own needs is definitely in question. The most obvious alternative source of supply happens to be one of the great trouble areas of the world politically, and the fact that petroleum exists there in unparalleled abundance is not likely to alleviate the difficulties endemic to it. Nor is the danger lessened by the circumstance that that area lies on the very threshold of the Soviet Union.

Petroleum exploration and development in backward areas is both expensive and financially risky, a fact which throws the initiative in such development upon great industrial combines (or governments). But the exercise of such initiative by those who are alone capable of it provides in turn all the ingredients necessary to the literary output of what has been called the "scandal school" interpretation of international politics. To make confusion worse, there is a marked division of interest within the American petroleum industry itself concerning the desirability of developing foreign sources of supply. All these factors have combined to stimulate a vast outpouring of literature on the subject of oil in commerce and politics, most of it propagandistic and much of it mere excoriation of the allegedly nefarious machinations of certain oil companies and of those governments which are presumed to be their lackies. There is plenty to read on oil, but rather little from which one may derive real enlightenment.

The interest of the United States Government in assuring adequate supplies to the nation ought and does extend to economic as well as strategic needs. But where the policies suggested by those respective needs diverge, as they inevitably do at crucial points, the strategic consideration must command first attention. It is not so much that the requirements of security are deemed to be the primary responsibility of government, taking precedence over all other responsibilities--though even the authors of the Federalist Papers thought that to be so. It is rather that the economic interest involves a consideration mainly of price differential in a commodity which is after all only marginal in the budget of the average citizen, while the strategic interest concerns the life or death of the nation.

It may be stated categorically at the outset--despite the relative tightness of the supply situation at this moment of writing--that there is no danger that the American consumer will ever lack in peacetime the liquid fuels which seem to be so important to him.¹ When the domestic supply of petroleum is no longer

1. The present (mid-1947) threatening shortage is due to the unprecedented and largely unexpected rise in demand coupled with a scarcity of equipment for the rapid expansion of transportation and refining facilities. It is not--or rather, not yet--a question of available reserves of crude petroleum.

adequate he will supplement it either by imports from abroad, which ought to be very cheap; or by production of synthetics, which will be more costly but not enough so to burden him unduly; or by a combination of both. The strategic issue is not so easily resolved. For one thing, the strategic side of the petroleum question places a far higher premium on foresight than does the economic side. There will be no abrupt collapse of domestic production during peacetime. Decline in domestic yield, when it comes, will be relatively gradual, and the period of decline will permit all kinds of adjustments as occasion for them arises. A war situation, on the other hand, could well see a sudden and drastic adverse change in the supply situation, with no time permitted for adjustment.

Military Requirements in Petroleum

What the atomic bomb will mean for the military importance of petroleum is difficult to predict at this time. The answer depends on a great number of variables, among which are the probabilities of success or failure of the current effort to obtain some workable system of international control of atomic energy. It is by no means obvious that the atomic bomb, even if available in substantial numbers to both belligerents in a future war, would greatly reduce the requirements of liquid fuel for the duration of hostilities. It might indeed have the opposite effect for reasons which it would not be relevant to expatiate upon in this paper but which in the main concern the much higher premium placed upon airborne--as against ship-borne--transportation of troops and military supplies. What effect it might have upon the duration of hostilities again depends on a number of variables, above all those affecting the number and distribution of bombs in existence. However, one thing is certain. Governments are not going to write down the military importance of liquid fuels and lubricants until they have the answers to the above questions, and that may not be for a very long time to come.

It is therefore not impractical, in attempting to survey the politics of oil, to abstract the atomic bomb largely out of the picture. The military analyst would do so with bad conscience, because he would know the abstraction to be unrealistic in his field of problems. But until he knows more, he may have to do it none the less. The person responsible for governmental decisions can for the time being do so with complete freedom. For, as Lord John Russell said just a hundred years ago in respect to another military invention: "We are walking if not in danger at least in darkness." Today there is no question about the danger, but the darkness is as pervasive as the danger is great.²

2. This may look on the surface like a partial retraction of the author's own analysis of the military implications of the atomic bomb as presented in his two chapters in The Absolute Weapon, edited by Bernard Brodie (Harcourt-Brace, 1946). However, the analysis in those two chapters proceeded from certain assumptions which were explicitly stated and the validity of which depended on the author's predictions. For the purposes of this paper, an assumption which involves a prediction (especially where the prediction concerns the number and distribution of atomic bombs to be expected at any given time in the future) must be classified as arbitrary or at least as one of several possible assumptions. Perhaps it is needless to add that the author is not retracting the general sense of his observations in the afore-mentioned book. He remains persuaded that a war in which atomic bombs are used from the outset in substantial numbers must necessarily be of short duration, at least in its decisive phases; but he would not recommend that military policy be based exclusively on that premise.

The Napoleonic adage that "an Army moves on its stomach" has in modern times been translated into the axiom that armies, air forces, and navies can move only on oil. Certainly the armed forces of the United Nations in the recent war consumed an enormously greater bulk of petroleum and petroleum products than they did of food. Approximately half the tonnage of supplies which the United States shipped to her fighters overseas was devoted to some form of petroleum derivative.

There is a series of much-quoted statements from Clemenceau, Lloyd George, Curzon, and others to the general effect that the Allies of World War I "floated to victory on a sea of oil." If that was so of World War I, how much more so it was of the recent war! Our overall output of gasoline for military use was about eighteen times as great in the latter stages of World War II as in the earlier war and that of aviation gasoline was about eighty times as great. Moreover the 100 octane gasoline used in our planes required larger amounts of crude oil for a given yield than lower octane fuels.

Petroleum derivatives entered into a steadily increasing number of materials of military use. Toluol, the basic ingredient of T.N.T., was made synthetically from petroleum. So was butadiene, the principal raw material of our synthetic rubber. Though such products could undoubtedly have been derived from other materials if necessary, the trend was and thus far remains toward rather than away from petroleum derivatives.

Navies, which in World War I were still predominantly coal-propelled, subsequently became wholly oil driven. One of the advantages of this shift was that ships could refuel from oilers or from larger warships while at sea—a factor without which the type of sustained operations carried out in the western Pacific during 1943-45 would have been impossible. And even without refueling, the ship which burns oil has at least 40 per cent more cruising radius than it would have if it had to burn coal. Because it burns liquid fuel a large modern aircraft carrier could go to the southwest Pacific and back without refueling, but in doing so it used about 18,000 barrels³ of fuel oil—or enough to heat the average home for more than three centuries.

Despite all this, however, the American armed forces used only about one-third of our domestic production of oil, which averaged during the later phases of the war approximately 4,700,000 barrels per day—or over 1 million more barrels of crude oil per day than was being produced in 1938. The remainder went into war-expanded American industries, including transportation, and into the armed services and industries of our Allies. But in any case the annual American production of crude petroleum, which in 1938 had reached something over 1.2 billion barrels, reached in 1944 under the impetus of war the figure of 1.6 billion barrels. But even this breath-taking figure was exceeded in the first full peacetime year of production following the war. And today we are producing at record levels which are constantly being pushed upward.

One cannot venture to predict within meaningful limits the petroleum needs of our armed forces if they should become involved in another great crisis some twenty-five or thirty years hence—even after the vast maze of uncertainties

³. The standard barrel of oil measures exactly 42 gallons. Since some oil statistics are given in tons, it is worth noting that there are approximately 7½ barrels to the short ton (2,000 lbs.).

provoked by the atomic bomb are arbitrarily disposed of. The curve representing degree of mechanization of our land forces may tend to flatten out, but the chances are against it. As our Army becomes increasingly airborne and air-supplied, and as firepower of individual weapons increases, fuel consumption per combatant soldier is bound to rise drastically--and indeed to become the limiting factor in further mechanization. Also, while engines become more efficient and therefore do a given amount of work with a lesser consumption of fuel, we know from experience that the increased efficiency of engines is always more than offset by the pursuit of greater tactical performance.

It has been argued that American military consumption during the recent war was quite prodigal, in fuel as in everything else, as compared with that of our enemies. The implication is that we could have got along with a great deal less than we did, just as the Germans got along very well for a time on a fuel consumption which even at its peak was a small fraction of ours. It is true that our enemies accomplished great things on a far lesser raw material base than we ultimately required; but we, unlike them, fought major campaigns at great distances from our shores, and our tremendous industrial productivity enabled us to saturate our combat forces with mechanized material and munitions which greatly increased our fuel needs and, incidentally, saved lives and made much more effective our relatively limited combat personnel. It is unlikely that the United States in preparing against some future crisis would voluntarily relinquish either the opportunity to fight abroad rather than at home or the ability to translate great industrial strength into military power.

In the net, about all one can say is that the armed forces of the future will consume liquid fuel at a rate per combatant person at least as great and probably much greater than the armed forces of today. Moreover, industrial and private use of petroleum products, unless deliberately checked, will also tend to increase. Thus, the 1.6 billion barrels per annum production, which just sufficed to meet our needs in 1944-45, would scarcely begin to meet the needs of a future emergency.

The Strategic Versus the Economic Approach

There are two essential differences between the armed services and civilian consumers generally in respect to liquid fuel needs. In the first place, the armed services in wartime not only consume oil on a far greater scale than in peacetime, but are also unable to accept any qualification of availability which might tend to impede their operations to a substantial degree. The civilian, on the other hand, may drastically reduce his consumption of petroleum products during wartime, and even the war-expanded industrial need for fuel may be satisfied in a relatively flexible manner by the considerable substitution of coal for liquid fuel.

But the primary and more basic difference between the strategic and the commercial approaches to the question of the availability of oil is that location of reserves is of transcendent importance to the military and of relatively little importance to industry or commerce as a whole. In peacetime oil is an ordinary commodity of domestic and international trade, and is available to all consumers, including the armed forces of any state, on a simple purchase basis. Whether it is derived from fields at home or abroad makes absolutely no difference to the consumer except in so far as transportation costs may be affected or as there may

exist foreign exchange problems and other artificial barriers to international trade. The latter in the case of oil have not recently been of much importance. Command of dollars or other appropriate currency has always during peacetime meant enjoyment of a full share of the world's oil resources, regardless of location of the wells.

During wartime, however, oil becomes the most important of all strategic raw materials, and belligerents will wage great campaigns on land or sea to gain access to oil or to deny it to the enemy. The question of who has legal title to the oil is then of almost no importance; the question of who has military control of the area in which it is produced and of the land and sea routes over which it flows is all-important.

The United States has thus far been so great a producer of oil that it has had in peacetime, despite its own tremendous consumption, a regular (though now disappearing) export surplus. And during the recent war American oil wells, with help from the Caribbean, met far the greater part of the needs not only of our own armed forces and military industries but those of Great Britain and various other of our allies, and met also a very substantial part of the needs of the Soviet Union, especially in aviation gasoline. The possession within our own shores or close to them of a vast fund of readily available oil, which was not only completely secure from the enemy but also on the whole advantageously placed as concerned transportation to places of need, proved a military advantage of the utmost importance. Retention of this advantage must therefore become the first and fundamental goal of a strategic oil policy.

The experience of Great Britain in World War I proved how great a naval disadvantage Britain had been forced to accept in shifting from coal, which was available at home, to oil fuel which had to be imported. As a result of the heavy loss of tankers to the German U-boat campaign in the spring of 1917--and as a result too of the heavy demands for oil from the fighting fronts in France--the usual six to eight months reserve of fuel for the Grand Fleet was reduced at one time to an eight weeks supply, a shortage which necessitated restricting the movements of that fleet. It was necessary to provide escorts for tankers before any other kind of freight-carrying vessels were being escorted and to carry oil in the double bottoms of great liners. And when the United States wished to send a squadron of battleships to the United Kingdom, she was asked to send coal-burning rather than oil-burning vessels.

The British, of course, had been well aware of the disadvantages attending the change, but Winston Churchill, as First Lord of the Admiralty at the time, had justified it on the grounds that Britain's life in any case depended upon British maintenance of command of the sea. So long as sea-borne transportation to certain vital areas of the world had to be protected anyway, it made little difference if petroleum or petroleum products were added to the list of commodities which had to be imported on a large scale. To be sure, the menace of the submarine, which among other things made possible a selective destruction of key types of vessels, was not foreseen.⁴ Even so, the extraordinary tactical advantages in

⁴. On the basis of available evidence, there is little to indicate that the submarine campaigns of either world war were in fact marked by selectivity in types of targets among non-combatant vessels, except in terms of size. The target fired at was usually the target of opportunity. But tankers are usually large and easily recognized, and the possibility always remains that they might be singled out for special attack efforts.

using oil in place of coal would probably have overridden any misgivings.

In the recent war the fuel difficulties of enemy navies also furnish a useful object lesson. Her conquest of the East Indies brought within Japan's control an oil-producing area which, while not one of the richest in the world, was nevertheless ample to meet Japanese industrial and military needs. And the sea lanes over which this oil was transported to Japan lay in the far western Pacific, where the Japanese Navy was, at least until 1944, considered to be supreme. Yet the toll of Japanese tankers taken by American submarines caused a desperate oil shortage within the Japanese home islands (the same was true also of rubber). What was suspected during the war is now clear--that the Japanese decision to base the bulk of their fleet in East Indian rather than in home waters prior to the Battle for Leyte Gulf was governed by the problem of fuel supply. It is now also known that the Japanese in making the sortie for that battle realized they could not refuel for another such sortie in less than two months, a realization which greatly influenced their handling of the battle.

In the case of Italy, it has been revealed that one of the reasons--perhaps the chief reason--for Italian naval inactivity during the later phases of the Mediterranean war was a perpetual shortage of fuel. Italy was entirely dependent upon the oil doled out so niggardly by her German ally. Whether the fleet failed to move because Germany gave it no oil or whether Germany gave it no oil because it showed no inclination to move, must still remain a question. But in any case we know that the mobility of the Italian Navy depended upon grants of oil from an ally who was desperately pressed for it herself.

The United States Navy has thus far enjoyed an advantage shared by no other great navy, whether friendly or enemy. The immediate security of the nation has never in any important sense depended upon imports from abroad.⁵ On the contrary, control of the sea lanes has been militarily valuable to us chiefly as a means of enabling us to assist our allies with our great resources and to send our armies and air forces abroad where they could come to grips with the enemy on his own threshold. In so far as our Navy had to concern itself with the security of shipping, that shipping was militarily important mainly as a means of exporting men and commodities rather than of importing them. This meant that American overseas commitments and operations during the recent war had that flexibility which results from possessing a certain margin of choice between military goals. Moreover, once our allies and ourselves were ready for offensive operations, our naval strength could be devoted almost entirely to supporting those offensives, wherever in the world they happened to be taking place.

The United States has not thus far had to depend for its sustenance in wartime upon defense of a long "life-line" over which an essential commodity was moved in

⁵ Except in terms of coastwise or semi-coastwise shipping. One is forcefully reminded of the acute oil shortage suffered by our northeast coast area during the second and third quarters of 1942 as a result of German U-boat depredations against tankers sailing from our own Gulf ports and from the Caribbean region. However, these submarines, operating in shallow waters far from their bases, were rather easily brought under control once the minimum necessary forces of antisubmarine vessels and aircraft were provided.

large volume. And in so far as our allies have had to depend upon such a line, that line usually extended from them to us rather than to any remote area of the globe. The much-touted British "life-line of Empire" through the Mediterranean to India has never in recent times been nearly as important to England as the line across the Atlantic. This is particularly true in the case of oil, which in the two world wars Britain received predominantly from us. Britain therefore has a strategic stake hardly less than ours in the conservation of oil in America.

If, however, we were to become dependent mostly or even largely upon such an area as the Middle East for our supplies of oil in wartime, we should be accepting an enormous handicap, a fact sufficiently demonstrated by the difficulties we experienced in the coast-wise and Caribbean transportation of crude oil by tanker during the recent war before the submarine menace was mastered and interior pipelines built. For regardless of where on the globe military operations were called for, our primary concern would have to be with protecting what might easily prove to be a tenuous line of sea-borne communications from the Middle East to our own shores--a line which except for our dependence on oil we might have no military interest in maintaining. Even that proposition assumes that the area in which the oil originates remains out of enemy hands. The fact is that for America the Middle East is one of the most insecure areas of the globe. Even in 1942 the German threat to the Middle East was immediate and pronounced, and we may be sure that Germany would have mounted an even greater effort in that direction if we had been heavily dependent upon that area as a source of oil.

In the political constellation of today we see an even less encouraging prospect for our ability to hold Middle Eastern petroleum fields in a major conflict. For the time being, all American strategic calculations concerning the requirements of great wars must envisage the Soviet Union as the opponent, if for no other reason than that she is the only foreign power whose defeat would require great exertions on our part. Unfortunately, there are also other reasons. And the petroleum bearing area of the Middle East lies on the doorstep of the Soviet Union.

Whether it is possible to defend that area against the Soviet Union is not at issue. It is by no means out of the question, in view of the character of the terrain connecting the oil regions with the centers of Soviet power and of Soviet deficiencies thus far in overland transportation, that it could be defended by a mobilized America, with or without major allies. But whether the oil itself, or its denial to the opponent, would be worth the price required to defend it is quite another matter. So long as any feasible alternative remains, the answer must almost certainly be no. The "almost" is contingent first upon whether the alternative is available at a lesser price in manpower and physical resources. It is also contingent upon whether there are other objectives within the area the defense of which was so high a priority as to carry the petroleum objective with it. The answer to the latter question, in this writer's opinion, is definitely no.

It has been justly argued that if England is our partner in another major war, her minimum strategic defense area is also ours. That is to a degree true, but the implication usually conveyed in such an argument, that the eastern Mediterranean and the Middle East generally are vital to the security of Great Britain, is not true. The Anglo-Iranian Oil Company may furnish in peacetime a major part of British naval fuel consumption, but, as already stated, in wartime the pattern is quite altered. And in so far as British imperial interests are involved, there are none in the region of sufficient importance to command a high priority of

commitment in strategic planning. In any case, imperial interests, with which the United States may or may not be sympathetic, must be held in abeyance when the larger issues demand settlement.

Finally we must consider the view that the area in question might provide an excellent staging base for an offensive, and that while neither offensive nor defensive objectives taken separately could furnish a sufficient justification for holding the area, the combination of those objectives might well do so. A case in point is that of the British Isles during the recent war, which had to be defended anyway and which ultimately provided the ideal base for invasion of the continent. But that case is a strategic accident, not likely to be repeated in other parts of the world. What the British Isles contained was of far greater value than oil pools. Moreover, factors of timing enter the calculation. As the recent Pacific War proved, the area which will ultimately serve as the staging base for final and decisive attack is not necessarily one that must be held in the beginning. Also relevant are considerations of freedom of decision and of surprise. And in strategy as in other affairs of life, the objective which fulfills too many purposes is not likely to serve any one of them well.

The strategic approach to the oil problem must thus be based on the premise that, so long as it can be made to fulfill our basic wartime needs, the only oil reserve worth defending is that which can be held with a minimum of defensive military commitments. That portion of it which falls within the area we must in any case defend is pure windfall strategically. And since the United States, the Caribbean, and the northern part of South America clearly fall within our "minimum strategic defense area," a sound strategic oil policy must stem first of all from an accurate appraisal of reserves within that area, both of crude petroleum and of alternative sources of liquid fuel. It must also consider productive capacity in the area and the degree to which that capacity lends itself to rapid expansion, for oil in the ground is not necessarily available on demand. This does not preclude interest in other areas even for wartime needs, since such areas may be accessible to us during an emergency. But for the most part our interest in distant overseas oil fields is either purely economic or is based on the desire to exploit those areas in order to help conserve American reserves for military emergencies.

How Much Oil Can We Count Upon?

The real extent of potential American reserves in crude petroleum is a subject of bitter controversy. Within the oil industry itself, there are in general two groups with fairly distinctive interests. One is represented by the so-called "major" producer--the large, integrated corporation, such as Standard Oil of New Jersey, Standard Oil of California, The Texas Company, Shell Union Oil, Socony-Vacuum, or the Gulf Oil Corporation. Such companies usually list among their crude reserves large holdings abroad, and in any case they are interested in refining and distribution as well as in crude production. The Socony-Vacuum Oil Company, for example, has always been a large purchaser of crude oil on balance, its own crude production usually amounting to substantially under 50 per cent of its refinery requirements. Although such companies invariably also possess within the United States great holdings of crude reserves and extensive leaseings of areas considered promising, their interests are sufficiently hedged to permit them to adopt a fairly objective view of the world-wide oil situation. On the other side are the so-called "independents," who are interested mainly in producing and selling crude oil and whose properties usually consist predominantly if not wholly of domestic reserves.

The latter group naturally looks upon any kind of foreign production, and especially upon importation, as competition. They therefore share with American producers of other commodities a markedly favorable attitude towards tariff protection and desire for complete freedom in the exploitation of their reserves. They bitterly and effectively opposed the Saudi-Arabian pipe line project sponsored by Mr. Ickes during the war. In order to allay governmental fears which might result in marked interference in their operations, they are given to publicizing estimates of our domestic reserves which stress maximum possibilities. Their conception of the ideal solution to the threat of diminishing domestic supply is generally one in which a steadily rising tariff schedule or other form of import restriction offsets the rise in costs of production resulting from advancing depletion of American fields. Our vast resources in hydrocarbons for synthetic production of liquid fuel are held up as the ultimate insurance against strategic and economic embarrassment. So long as the huge domestic market of the United States is assured them, they have everything to gain and nothing to lose by such a policy.

It would be a bizarre accident if the strategic interests of the United States were in accord with the policies of the independents, though it is not impossible that they may be. It certainly appears on the surface that the economic interests of the ordinary consumer, with which the government should also be concerned, are scarcely in harmony with those of the independents in the matter of foreign production and imports. But while the estimates of American reserves on the part of the independents are likely to be colored by interest, they must nevertheless be considered along with other estimates.

Existing Oil Resources of the United States. The oil resources of the United States must be considered in terms of proved reserves of crude petroleum, probable future discoveries, relation of size of reserves to rate of production, proved reserves of alternative sources of liquid fuel, and the technological and economic availability of those alternative sources for actual production.

So far as current proved reserves of crude petroleum in the United States are concerned, there is no controversy. The standards used for determining proved reserves are set by the American Petroleum Institute, which is currently presenting a figure of something over 21 billion barrels. However, it is legitimately pointed out by many oil people that the API standards are extremely conservative. For one thing, the API method is to confine estimates of proved reserves to those proved by actual drillings. But the state of the art is such that there are frequent instances where we can be sure there are oil reserves, and even estimate their size with reasonable accuracy, without having done all the drilling required by the API standard. Furthermore, the proved reserves are customarily calculated at about 40 per cent of the petroleum contained in the natural reservoirs to which the estimates apply, because that represents the average proportion recoverable in the past by conventional methods. However, methods of secondary recovery in so-called "stripper" wells do appreciably increase the proportion recoverable, and techniques are constantly evolving for pushing still higher the ratio of recovery.⁶

6. A recent discovery of apparent promise involves the injection into depleted wells--or oil shale deposits--of a marine bacterium which rejoices in the name of halohydrocarbonoclasticus. This bacterium not only modifies favorably the chemical composition of imprisoned deposits but also by its growth physically crowds the diffused oil into pools from which it can be pumped. See New York Times for January 10 and January 14, 1947.

On the other hand, it is also possible that the costs of secondary recovery may mount so rapidly that long before it is pushed very far it will prove economically advantageous to turn to other means of procuring liquid fuels, including resort to synthetic production.

The term "proved reserves" has caused a good deal of confusion in this country, especially because the figure has tended to go up even as our cumulative consumption and current production have gone up. The more oil we use, the more we seem to have, and the fears expressed in the past concerning the future of our oil supply are made to look utterly ridiculous. The reason for this is simply that the normal play of supply and demand tends, through its ultimate influence on the price of crude petroleum, to determine the amount of exploration activity.⁷ Thus, the ratio of proved reserves to current annual consumption has varied in recent times somewhere between 14:1 and 12:1. And since consumption has undergone a marked secular expansion over the last thirty years, the fund of proved reserves has been comparably expanded. Obviously, however, such a situation can continue only so long as there is still an "open frontier" for oil at home, that is, only so long as there remain fields which can be discovered and exploited at costs which permit domestic petroleum to compete with alternative sources of liquid fuel.

It should also be clear from the statements of the preceding paragraph that a fund of proved reserves some fourteen times greater than the current annual consumption does not mean that the country's visible supply will last only fourteen years—a deduction implicit in the often repeated assertion that "we can count only on what we know we have." It would in fact be physically impossible to withdraw the present proved reserves of the country within fourteen years—due simply to the fact that as a given field approaches depletion its rate of production inevitably declines. The quantity of proved reserves must be looked upon rather as a fund which supports a certain optimum economic rate of withdrawal. Thus, the continuation of that rate of withdrawal depends upon new accretions to the proved reserves to replace those withdrawn—in other words upon the further development of existing fields and the discovery of new ones. What is important is not the ratio of rate of withdrawal to proved reserves but rather of rate of withdrawal to rate of new accretions to the proved reserves. It is as close to an absolute certainty as anything can be that we will continue to discover new oil within the country. To that extent we can count on "more than we know we have." What is in question is how the rate of domestic discovery will compare with our advancing rate of domestic consumption.

Potential Oil Resources in the United States. The amount of oil still to be discovered in America is obviously a matter of speculation, and estimates vary enormously. Some oil experts maintain that there is more oil waiting to be found than has yet been discovered. Others point out that the bulk of present American production comes from flush wells—that is, about 85 per cent of the volume comes from 8 to 10 per cent of the wells—and that the rich fields which produce flush wells are not nearly so likely to be met with in the future as they have been in the past.

7. The institution of proration, through which supply is restricted at the well-head, modifies the direct influence of price as an equator of supply and demand. But price is by no means rendered inoperative as a governor of the prorationing system, and it continues to influence through demand not only production proper but the whole sequence of events lying behind production, including search, discovery, and drilling.

This country has a history of estimates of oil reserves having consistently turned out to be far too pessimistic. An unfortunate result of this fact has been a tendency to reason that since our estimates proved too pessimistic before, they are undoubtedly too pessimistic today, and that our figures of domestic proved reserves will go on mounting in the future as they have in the past. But this country also has a history of seemingly inexhaustible resources suddenly being exhausted. That happened to our original forests, which, incidentally, are much more easily replaced than petroleum and is about to happen also with our richer iron ores. A gallon of oil, which took nature millions of years to develop, is when consumed as fuel no more replaceable than is the extinct passenger pigeon, less than a hundred years ago the most numerous bird in America and possibly in the world. It may be true that the cry of "Wolf! Wolf!" has been raised when there was no wolf, but in the fable no one heeded the cry when the wolf actually came.

The only conclusive way to find oil is to drill for it. Modern techniques of geophysical survey are of marvelous assistance in indicating underground structures favorable for the trapping of oil, but whether such structures actually contain oil in significant quantities can be tested only with the drill. "Wildcatting," or prospecting for new oil fields, is an enterprise in which large sums of money must be risked, for a dry hole is a total loss, and the cost of drilling it may run into hundreds of thousands of dollars.⁸ Over the last decade some 20 to 35 per cent of all American wells drilled have proved dry, and of those considered productive some 15 to 20 per cent have yielded only gas, which, depending on quantity and on geographical circumstances, may or may not have a profitable market. Finally, out of the oil producers, only about 40 per cent are considered "commercially productive"—that is, sufficiently productive to pay at least their own cost.

One measure of success in oil discovery—through a very rough one—is ratio of dry holes drilled per million barrels of oil discovered. There is, however, little need to go into the controversy of the significance of the trend in recent years. It is argued on the one hand that the ratio has gone up since 1937, indicating diminishing promise; and on the other hand that this is a temporary trend, comparable to other such trends in the past, and that when considered over a long-term period such as the last forty years the ratio has tended to become more and more favorable.⁹

8. The accepted API definition of "wildcat well" was rather recently changed, resulting in some confusion in the interpretation of statistics. A wildcat was formerly defined as a well drilled not less than two miles from a producing well, but in 1943 the definition was changed to cover wells drilled one mile from a producer. Thus, a great part of the recent statistical increase of wildcatting in the United States is due simply to a widened definition. It is worth noting that figures for wildcat wells drilled are available only for the last ten year, while figures for total wells drilled and for dry holes are available for forty-seven years.

9. Statistics on United States well drilling from 1900 to 1943, inclusive, are conveniently presented in a pamphlet entitled "Some Facts on the Search for Oil in the United States of America," issued in April, 1944 by the Standard Oil Company (New Jersey). A much more elaborate body of statistics relating to various aspects of the petroleum producing and refining industry, but confined to a shorter period, is contained in a pamphlet entitled "Trends in the Petroleum Industry, 1918-1944," issued on April 5, 1944 by the Petroleum Industry War Council.

The significance of either argument can be greatly exaggerated. Certainly the latter fact reflects simply improved methods of preliminary exploration, based both on experience and on greatly improved technology, and therefore indicates little or nothing concerning the rate of future discoveries. But it is also true that short-term trends cannot be considered conclusive of anything. A small proportion of dry holes may simply reflect unwillingness to take the risks incurred in drilling outside of tested fields, and that reluctance may in turn be due to any of a number of circumstances.

On the other hand, one cannot wholly discount the fact that while a greater number of wildcat wells were drilled in the United States in 1946 than in any other year (possibly subject to reappraisal in terms of the changed definition of wildcatting), the really new oil added to reserves was the lowest of any year in at least the last thirty.¹⁰ The substantial additions to proved reserves were through reappraisal and upward revision of known fields, as well as through extension of the productive areas of those fields. The new pools discovered appear to be relatively unimportant. The experience of 1946 clearly goes a long way toward demolishing the argument frequently ventured during the war: that the disappointing exploratory results of recent years were due primarily to the inhibiting effect of war needs and shortages on the more speculative kind of wildcatting.

It has also been asserted that less than half the total area in the United States considered promising for petroleum has been thoroughly explored, and that in many of the regions already producing only the upper layers of the petroleum-bearing rocks have been tapped by the wells thus far drilled. Underlying the beds from which petroleum is now being withdrawn, it is said, there remain thousands of feet of rocks which are still untouched by the drill and which may very well yield petroleum when they are tested. Concerning the first part of this argument, it may be true that less than half the American areas considered promising have been thoroughly explored; but most of the rest have received some kind of preliminary sounding, and obviously the half which was first thoroughly explored would be the most promising half. We cannot assume that the other half will be anything like so rich in new discoveries. Even oil men interested in maximizing possibilities admit that, as one of them has put it, "oil finding is an increasingly difficult undertaking in this country at best."

On the question of deeper exploration, it is true that technological improvements have made it feasible to drill much deeper than before, and that zones of oil have been discovered considerably below fields which have long been in production. The deepest well in existence in 1918 was 7,579 feet, considered then to be about the practical limit. The deepest producing well in operation today—that of the Shell Union Oil Company at Weeks Island Field in Louisiana—was drilled to a total depth of 14,301 feet, which is close to twice the depth of the limit prevailing thirty years ago. On the other hand, we know that in many areas "basement rock," below which it is useless to drill, often occurs at relatively shallow levels. Also, exploration costs naturally rise steeply with increasing depth of tests. During 1945 the Standard Oil Company of California was obliged to abandon as dry a test hole in Kern County, California after drilling it to the

¹⁰. See The Texas Company: Annual Report for the Year 1946, pp. 5 ff.

then record depth of over 16,000 feet (a depth already substantially exceeded by a test hole currently being drilled near Fort Cobb, Oklahoma). The cost of drilling that hole was probably not far short of half a million dollars. Since the productive wells must pay for such failures, one must discover rich fields indeed to warrant exploration at those depths. Also, such deep drilling must largely be confined to the further testing of known fields and can hardly be applied to pure wildcatting.

Much has been heard of late of the vast oil reserves of our continental shelf, especially that part of it lying off existing oil fields on the coasts of California, Louisiana, and Texas. The continental shelf, which by definition lies at a depth of less than 100 fathoms (600 feet), varies considerably in width, but on our Texas coastline it extends out to sea some twenty-eight miles. That there are numerous structures favorable for the occurrence of oil in that shelf is not only a reasonable expectation from coastal occurrences but has been definitely established from geophysical surveys carried out by several oil companies. However, the business of drilling wells miles out at sea is quite another matter. There are already productive wells in operation over water, especially at Lake Maracaibo in Venezuela, but nowhere at more than 100 feet of water depth or at more than ten miles from shore. Even those oil men who are conspicuously optimistic concerning our crude oil potential concede that on a basis of relative costs the continental shelf is far less promising than synthetic production of liquid fuel from coal. In other words, the shelf is likely never to be exploited to any significant degree unless our oil need should "become so imperative as to make producing cost a secondary consideration,"¹¹ a situation which could occur only during war or imminent threat of war. And even then the oil of the shelf would not be available unless we had previously developed the necessary techniques and provided the requisite equipment.

Returning to the situation ashore, a good deal obviously depends on technological progress in oil-finding and oil-producing techniques. It has been estimated that probably three-quarters of the discoveries of new oil pools during the last fifteen years would not have been made except for seismic methods of sounding which did not even exist in 1918, and which, incidentally, developed largely from scientific work concerned with locating large enemy guns during World War I. On the other hand, some experts also believe that the kind of "text-book" structures to which these and other methods are most applicable have already been largely surveyed within the United States, and that new methods are necessary if the recent rate of discovery is to be maintained or improved upon. A revolutionary advance would ensue if some method were found for mapping out stratigraphic traps, which at present defy any type of sounding other than the drill itself.

Barring the advent of such an invention, it seems a sound deduction from the available evidence that the costs of exploration, and hence of production, within the United States are bound steadily to rise relatively to alternative sources of liquid fuel. Whether those "alternative sources" take the form of imported petroleum or synthetic production or both depends largely on governmental policy, especially as regards

¹¹. See Wallace E. Pratt, "Continental Shelf," *The Lamp* (bi-monthly publication of the Standard Oil Co. of New Jersey), March, 1947, pp. 19-21. The quoted passage above is from the editorial comment on that article.

the tariff. The independents are already pressing for a restoration of the full 21-cent per barrel import duty on crude petroleum, which was effectively halved as a result of the generalization, under "most-favored-nation" clauses, of our reciprocal trade agreements with Venezuela and Mexico.¹² Disregarding its effect on American trade policy in general, such a restoration would be meaningful mostly as a prelude to further boosts.

There is no question that we can find within the country enough oil to fill the major part of our needs for a long time to come if we are determined to prevent any large influx of foreign petroleum. And ultimately the rising price of domestic crude would enable synthetic production to become commercially competitive. There is no potential shortage in any absolute sense to worry about, but there is decidedly the question of costs. And there remains also the question of which policy would assure us of the greatest domestic supply in a military crisis.

It would seem on the face of things that the best and certainly the cheapest way of assuring ourselves of the greatest possible fund of domestic proved reserves during war would be to relieve the drain upon our resources during peacetime by relying heavily on imported petroleum. But, for reasons which will shortly be presented, it by no means follows automatically that such a policy would actually maximize the proved reserves available for an emergency.

Petroleum Resources of other Western Hemisphere Countries. The distinction several times made in the preceding paragraphs between "domestic" and "imported" petroleum may be somewhat misleading when applied to other Western Hemisphere countries. For while the trade statistics consider all petroleum resources outside the United States as indisputably foreign, from the strategic point of view those situated in Latin America or Canada are available--with qualifications--to a degree comparable with domestic resources. The qualifications, which will be reviewed in a moment, are extremely important. But it is nevertheless worth while to point out that our strategic goals are not advanced very much by a policy of importing oil in order to spare our own when those imports come mostly from other parts of the Americas.

The qualifications upon considering Latin American petroleum as strategically domestic are in general two fold. The first and least important concerns the vulnerability of transportation. The oil of Venezuela is shipped to the refineries of our Eastern Seaboard by tanker. So too is the oil produced in our own Gulf region; but for the latter there are alternative means of shipment, such as the great pipe lines built during the war as an emergency measure. No such alternative exists for the petroleum of the Caribbean and of the South American continent. However, if the whole experience of World War II rather than that of a few months in 1942 is taken as a touchstone, this dependence upon what amounts to coastwise transportation is not too serious. At any rate, communications to Latin America are likely to be far less vulnerable than those extending to the Middle East. It is for that reason mainly that we consider the petroleum resources of Latin America as within our "strategic sphere."

Much more important is the fact that the oil policies of Latin American countries are subject neither to the control nor even the appreciable influence of our government. Certain negative features of control and influence exist.

12. See New York Times, January 2, 1947

The companies operating in those areas are overwhelmingly of American nationality, and thus presumably subject to some persuasion from our government. But the importance of that factor can easily be exaggerated. Secondly, there is the matter of American import controls, tariff or otherwise; but this is definitely a "big stick" rather than a "sugar loaf" instrument, and not really available to a democratic government except as a punitive measure for specific injustices. The expropriation of foreign oil interests by the Mexican government and the decidedly negative attitude of various other Latin American governments towards development of their oil resources by foreign enterprise, American or otherwise, indicate that the potential oil resources of the Americas in a physical sense are by no means identical with the potential oil resources available to us. At least in the past, oil fields in Latin America which were not discovered and developed by foreign enterprise were likely not to be discovered and developed at all.

On the other hand, so long as petroleum is being produced in Latin America--especially in the northern part--that production is likely to be available to us in a military emergency. And while we cannot directly pursue policies seeking to promote development of those resources, self-interest for the countries involved, if we can count upon its being objectively examined by them, is a powerful ally in our favor.

Venezuela is the greatest petroleum producer of Latin America, ranking second in the world after the United States. Because of its small domestic requirements, its annual exports of petroleum exceed those of the United States, even though its rate of production is about one-tenth that of the latter. For the time being it remains the leading petroleum exporter of the world, shipping some of its production to the United States but most of it to Europe. Its present proved reserves total about 6 billion barrels, and there seems to be promise of large future discoveries. Relations between the Venezuelan government and the private oil companies are generally satisfactory.¹³

Venezuela and the United States between them account for some 93 per cent of the total oil production of the Western Hemisphere, with another 5 per cent being accounted for by Mexico, Argentina, Colombia, and Peru. Trinidad too enjoys a fairly significant position, and the activity of Canada in oil production is definitely growing. Ecuador, Bolivia, and Brazil also produce oil, but in very small quantities. Some countries of the Western Hemisphere which are considered by geologists to have important oil potentialities are not commercial producers at all, due in the main to the negative attitude of their governments towards the influx of foreign enterprise.

The case of Mexico is particularly interesting, since in 1921 its level of production (550,000 barrels a day) amounted to no less than 42 per cent of the production of the United States at that time. To be sure, the same wasteful methods of extraction which then prevailed in the United States were used also in Mexico, and decline in production began even before the period of increasing difficulties between the Mexican government and foreign operators. Nevertheless, the growing political risks retarded that search for new oil fields which is essential to sustained production, and prompted the industry to direct its exploratory efforts elsewhere. The final expropriation by the government of the oil properties in Mexico did not result in any reversal of the declining trend in production. Mexico has receded from second to sixth place in world production

¹³. Joseph E. Pogue, "Oil and the Americas" (Privately printed pamphlet, 1944).

during the same period in which Venezuela rose from thirteenth to second. Nevertheless, Mexico still has proved reserves of over 700 million barrels, and its potentialities for future discoveries are considered very good.¹⁴

Argentina is also interesting because it is the only oil-producing state of Latin America which, despite rather extensive areas considered promising for oil development, fails to produce its own requirements. Although the private companies which originally opened the fields are still permitted to operate under restrictions, the oil industry in that country is for all practical purposes a government monopoly. Brazil too is a negligible producer despite great stratigraphic basins favorable for the occurrence of oil, and again it is so because of laws unfavorable to outside private capital.

It may be that in the future the Latin American countries of high oil-producing potentiality will revise their attitudes concerning foreign enterprise--Mexico shows some indications of doing so already--but until they do so or until they demonstrate a greater efficiency of their own in internal development, the potential resources of South America are simply no resources at all. It can never be too much emphasized that fields must be discovered and developed before they are available to anybody. Failure to explore may be conservation for nature, but not for man.

Oil exploration and development in Latin America is generally not a low cost enterprise, despite relatively low labor costs. As in the case of the Middle East, the oil fields are remote not only from markets--a relatively unimportant factor because of the cheapness of petroleum transportation by tanker and pipeline--but also from the sources of drilling and other equipment. Roads must be built and communities developed in the jungle, and the terrain is much less favorable than that of the Middle East to such pursuits. And of course the oil fields, while rich by Western Hemisphere standards, do not compare in potential productiveness to those of the Red Sea-Persian Gulf area.

American Substitute Sources of Liquid Fuel. In the immensity of our reserves of alternative or substitute sources of liquid fuel--such as natural gas, oil shale, tar sand, and various types of coal (including lignite)--we have a potential guarantee against shortage of liquid fuel in wartime. Measured in terms of barrels of liquid fuel into which they could be converted, known deposits of substitute sources in North America are sufficient to keep us going for hundreds, perhaps thousands, of years.

However, before we can consider the various raw materials for synthetic production as really available during an emergency, we must see built up in this country a sizeable plant ready on short notice to undertake a production sufficient to supplement substantially our output from crude petroleum. How could such an event come about?

Under present processes of conversion, only natural gas can produce a gasoline which compares in price with fuels produced from crude petroleum, and the amount of low-cost natural gas which is available for conversion to gasoline is relatively small--estimated by one responsible research organization as equivalent to less than 2 billion barrels.¹⁵ Some have placed the figure at close to 17 billion

¹⁴. Ibid., pp. 11-13

¹⁵. Standard Oil Research Corporation, "Preliminary Review of Cost and Availability of Motor Fuel from U.S. Non-Petroleum Sources," (mimeographed pamphlet, dated December 3, 1943) pp. 1-6. The Standard Oil Research Corporation is a subsidiary of Standard Oil of New Jersey.

barrels, but such deliberately optimistic estimates generally overlook two facts: first, that gas which already enjoys a high-value demand in its existing state is not available for conversion, and second, that only those areas in which large gas producing wells are reasonably concentrated are available for economic production.¹⁶ Moreover, it is likely that gas reserves will tend to decline with the oil reserves, and that the potential feed for the synthetic plants will decrease as the economic need for the process increases. The most we can hope for is that in the not distant future some 10 to 15 per cent of the country's needs in gasoline (as distinct from other liquid fuels) will be filled through natural gas synthesis. The first commercial plant for such synthesis is in fact now being built in Texas, and a second is soon to follow in Kansas.

The next lowest cost sources by presently known processes are tar sand and oil shale, both existing in extensive deposits in North America--the tar sands, however, almost exclusively in the Athabaskan fields of Canada. But only relatively small proportions of these deposits are both accessible enough and rich enough in yield to make them a cheaper source than coal, and the cost advantage even of those richer deposits might disappear with a rise of mining costs generally. That is to say, mining costs are not as critical in the case of coal as they are in the case of tar sands and oil shales, due to the fact that coal has a much larger yield of liquid fuel per ton (about 2.4 barrels).¹⁷ And if, as is expected, the costs of coal conversion are more amenable to reduction than the costs of shale or tar sand conversion, coal will be able to compete with or displace in use most of the oil shale and tar sand deposits as soon as any large quantity of substitute motor fuel is required.

The ultimate available coal resources of the North American continent and especially of the United States are staggeringly huge. In the United States alone commercially available coal reserves--i.e., in workable seams above 3,000 feet depth and covering the range from anthracite to lignite--are scattered through twenty-nine states and are estimated to total 3.2 trillion tons. This compares with a present extraction rate of some 600 million tons per year. If 50 per cent of this coal were available for synthesis it would represent a potential gasoline reserve of 3.7 trillion barrels, or enough to last over 2,000 years at current

16. The latter requirement results from the fact that the minimum economic size of plant operating on the Fischer synthesis process would be of about 50 million cubic feet daily input, a very high figure when compared to the gas production of single oil fields. Such a plant would be obliged to gather gas from an area which was substantial to begin with and which would have to expand as the yield of the original wells inevitably declined. Thus, besides the very high capital investment in the plant itself, substantial gathering costs would be involved. Another rigid site requirement which might become important in particular instances is that for a plentiful supply of water. A plant processing 10,000 barrels of gasoline a day (on 120 million cu. ft. of gas) would require a daily water intake of some 15 million gallons. See also, besides the "Preliminary Review" above mentioned, the article: "Synthetic Gasoline," in The Lamp (bi-monthly publication of the Standard Oil Co. of New Jersey) Vol. 29, No. 2 (March 1947), pp. 7-11.
17. Of course, the rise in coal mining costs might be disproportionate to the rise in costs of other forms of mining, due to the exceptional strength of the labor union involved in coal. But coal has an additional cost advantage over shale in that it presents a relatively small problem of ash disposal, while in the case of shale the problem of disposing of the spent rock might be considerable.

American rates of liquid fuel consumption. For the synthetic production of gasoline the lowest grades of coal are almost as good as the best grades; and in the Rocky Mountain area lie huge deposits of bituminous and sub-bituminous coal and lignite--much of it accessible through economic strip-mining methods--which now remain entirely untouched for want of a market.

However, under present processes gasoline made from coal costs about three times as much at the refinery as does gasoline made from petroleum, and while American research effort has already effected substantial cost-reducing improvements in the Fischer process (used by the Germans during World War II), no responsible specialist in the field predicts a refinery cost for the synthetic product lower than twice that made from crude petroleum--so long as the synthesis is carried out as an isolated operation. If such synthesis is dovetailed into the production of manufactured gas the costs of the liquid fuel derived may be brought substantially lower, but the magnitude of such operations will obviously be limited by the market for the gas.¹⁸

In considering the costs of synthetically produced fuel, one must always bear in mind that the differences in cost operate only through the refining stage, after which transportation and distribution costs--and taxes--should be exactly comparable to those of the present commodity. Thus, if a gasoline which costs \$0.06 per gallon at the refinery sells for \$0.22 at the roadside station, one which costs \$0.12 at the refinery should sell at the dispensing station for not much over \$0.28. A 100 per cent increase in refinery costs becomes by the time the commodity reaches the consumer a slightly more than 25 per cent increase in price. Naturally, in the case of other liquid fuels--such as those used for home heating, where retailing costs and especially taxes are substantially lower--the proportionate increase in price to the consumer might be much greater.

Now, how important is the rise in price to the consumer? Some maintain that it is of little importance, that the car owner can be expected to pay his five or six cents extra for each gallon of gasoline with no greater consequence than that of causing him to be less wasteful in his gasoline consumption. It would also put some pressure upon automobile manufacturers to design engines of greater efficiency, in which respect there is apparently a good deal of room for improvement over present designs. On the other hand, we know that in the aggregate the consumers of this country would be called upon to spend some hundreds of millions of dollars extra per year if they were obliged to use fuel produced synthetically or even from high cost petroleum, and before we accept such a solution we should examine the alternatives. Certainly one alternative to the use of high-cost fuels is the peacetime exploitation of the vast resources of petroleum which exist outside the Western Hemisphere.

18. The Pittsburgh Consolidation Coal Company has already announced its plans to build a \$300,000 pilot plant at Library, Pennsylvania, about ten miles south of Pittsburgh, to test the commercial feasibility of such dovetailing operations. Should this operation prove successful, a \$120,000,000 commercial plant will be constructed about 25 miles south of Pittsburgh adjacent to a very large deposit of bituminous coal. Collaborating in this project is the Standard Oil Development Corporation (a subsidiary of Standard Oil of New Jersey) which has carried out extensive experimentation in synthetic production at its plant in Baton Rouge, Louisiana.

19. A preliminary report of the Technical Oil Mission to the Middle East, dated July 1, 1944 and signed by Dr. E. S. Dyer, was entitled "Preliminary Report of the Technical Oil Mission to the Middle East," but it remains in fact the only report prepared by that mission.

But before proceeding to consider those resources, one additional point must be made about synthetic production. If large-scale synthetic production should involve a refinery cost for gasoline approximately twice that of the present type of gasoline, it suggests that the price of crude petroleum could rise to approximately twice its present level before any large amount of synthetic production became commercially feasible on a competitive basis. That happens indeed to be the case, and such high prices for crude petroleum would enable the oil industry, before yielding to coal its predominance in the field of liquid fuels, to bear much higher petroleum finding and recovery costs than it has thus far. Moreover, as crude petroleum tends to rise in price, it will be more exclusively devoted to uses for which it alone is specifically indicated--the net effect of which will be to stretch the utility of available petroleum.¹⁹ The combination of these factors means that even if cheap foreign petroleum were shut out of our domestic market by tariff or other means, the development in this country of a large synthetic industry to serve emergency needs might nevertheless be very considerably delayed.

Oil Resources of the Middle East. The large oil reserves of the world appear to lie in two main areas: on the one hand the Caribbean-Mexican Gulf area, which includes the southern United States, Mexico, the West Indies, and the Caribbean seaboard of South America; and on the other hand the Middle East region, which includes the area lying generally between the Mediterranean, Red, Black and Caspian Seas and the Persian Gulf. Other oil-producing regions of the world, including the East Indies, are of minor importance by comparison.

The present proved reserves of the Middle East outside of the Soviet Union total about 16 billion barrels. If one adds the "indicated reserves," that is, the reserves estimated to lie in fields already discovered but not yet fully explored, one arrives at a figure at least as large as the total proved and indicated reserves of the United States. However, exploration of the Middle East region has hardly begun. The DeGolyer Technical Oil Mission to the Middle East in a celebrated wartime report to the Petroleum Reserves Corporation made the following statement:

"When one considers the great oil discoveries which have resulted from the meager exploration thus far accomplished in the Middle East, the substantial number of known prospects not yet drilled, and the great areas still practically unexplored, the conclusion is inescapable that reserves of great magnitude remain to be discovered. The proved and indicated reserves of this area are comparable with those of the United States, yet all of the Middle East reserves have been discovered by the drilling of less than a total of 150 wildcat wells. In the United States we drill more than twenty times this number of wildcat wells each year."²⁰

19. For example, rising petroleum costs would force a conversion into higher grade fuels of what are now called "petroleum residues"--that is, the residues left after the processing of crude petroleum to produce the lighter and more valuable liquid fuels. These residues have been burned by large power plants in competition with coal on essentially a B.T.U. per dollar basis. The advent of catalytic cracking, which leaves a much smaller residue than the older thermal cracking process, and the availability of hydrogenation for the conversion of low grade fuels into higher value liquid fuels are already taking residual fuel oils out of the class of unavoidable by-products. See Robert E. Wilson, "Liquid Fuel from Non-Petroleum Sources," Chemical and Engineering News, August 10, 1944 (Vol. 22), pp. 1245 f.
20. Italics mine. This report, dated February 1, 1944 and signed by Mr. E. DeGolyer, was entitled "Preliminary Report of the Technical Oil Mission to the Middle East," but it remains in fact the only report prepared by that mission.

The experience gained by American oil companies on the spot since the DeGolyer report was issued--an experience which has embraced a very marked expansion of the actual production of the area--has served only to confirm the appraisal of the Technical Oil Mission. The 1946 average daily output of 588,000 barrels came from a very small number of wells. In Iraq alone 90,000 barrels per day were being produced from only ten wells operating at efficient rates, indicating an enormous shut-in capacity per well. At least three of those wells have already exceeded 50 million barrels each in total production, and the others will probably have similar recoveries when they have been in existence long enough. In Saudi Arabia production more than doubled between the end of 1944 and the close of 1945, and is expected to rise to over 300,000 barrels daily immediately upon the completion of the Trans-Arabian pipeline. It is at any rate clear that long before the Middle East is as thoroughly tested as the United States has already been, the ultimate resources of that area will be found to be enormously greater than those of North America.

Thus far the investments of American oil companies in the Middle East have not been large in relation to their total world investments. Recent estimates place their Middle Eastern commitment at about one-quarter of a billion dollars, which compares with a combined gross investment in properties, plants, and equipment of the thirty largest American oil companies amounting to some 12 billion dollars. Although segments of the American industry interested themselves in the area as early as 1919, the first American well was drilled there only in 1927. Incidentally, this first well, in Iraq, came in out of control and flowed at an estimated rate of 100,000 barrels daily--one of those huge historic gushers which in our domestic wildcatting experience have been all the more romantic for their rarity.

For a long time the tight British-French control of the area discouraged American entry, a situation not wholly remedied by the international agreement of 1928. In the period from 1928 to the outbreak of World War II, the supply-demand situation in the United States was not such as to stimulate intensification of exploratory and development activities in remote and politically questionable areas. The seven American oil companies actively interested in the Middle East during 1919-21 had by the time of the 1928 agreement been reduced to five, and three of these subsequently sold out their interests to the remaining two--the Standard Oil Company of California and the Texas Company. These two companies, however, proceeded to enlarge their activities, and as joint owners of the Arabian-American Oil Company acquired a virtual monopoly of the concessions of Saudi Arabia and of Bahrein Island on the Persian Gulf. Shortly before the outbreak of World War II they were joined in the area by the Gulf Oil Corporation, which gained a 50 per cent interest (together with Anglo-Iranian) in a rich concession covering the State of Kuwait. But until the present year such a company as Standard Oil of New Jersey, greatest of the American giants, was quite without a financial interest in the Middle East. Now, however, that company has purchased a 30 per cent interest and Socony-Vacuum a 10 per cent interest in the Arabian-American Oil Company, which incidentally has also reached an agreement with the Anglo-Iranian Oil Company (mostly British-owned) to purchase and market a substantial part of the latter company's production.

Thus, six of the largest American oil corporations are actively participating in the development and exploitation of Middle East petroleum, and the extent of their interest in the area is not to be measured merely by the magnitude of their financial commitments thus far. Just as a colt which turns out to be a winner of races is worth far more to his owner than his original purchase price, so also do the American owners view the worth of their

concessions. The eagerness with which the Arabian-American Oil Company under its newly expanded ownership is promoting the laying of a large 1,000-mile pipeline across the Arabian peninsula from the Persian Gulf to the Mediterranean is only one indication of the great expectations with which the American oil industry views the Middle East.

The restraints upon acceleration of production since the war have been exclusively concerned with such matters as the scarcity of facilities to pump, store, refine, and especially to transport the petroleum, whether in crude or refined form. The most critical single shortage at the moment is in pipe, and remedy of that situation is retarded by scarcity of steel. The world tanker situation is also extremely tight, but the projected trans-Arabian pipeline will reduce the tanker haul of Persian Gulf oil to northern European ports by almost 4,000 miles. The world-wide capacity of refineries must also be expanded before any great increase in Middle East production can be absorbed; those in the United States are already operating almost to full capacity and those of Europe have been badly damaged by the war. When these shortages are redressed, Middle East oil production will be limited only by the available market or by possible threats of grave political disturbance such as might discourage the influx into the area of further venture capital. What is least at issue is the physical problem--or the costs-- of discovering and recovering the oil in the ground.

Conclusions

The Economic-Strategic Dilemma. The economic interest of America, from the point of view of industry as a whole and of all consumers as well as producers, lies primarily in an abundant supply of liquid fuels at as low a price as possible. This interest would dictate a policy of entirely free competition in oil production not only domestically but also internationally--in other words a low tariff against crude petroleum (certainly not higher than the 10.5 cents per barrel currently effective as a result of our Trade Agreements program), and preferably no tariff at all. Our economic interest would dictate also a policy of encouraging American nationals to develop further the immense petroleum resources of the Middle East. The latter policy would have the two-fold advantage of, first, guaranteeing the application of American experience and enterprise to the opening of the great fields in that area, and secondly, maximizing American representation in an activity which greatly affects American economic interests. It would also be entirely consonant with the avowed American policy of seeking to reduce restrictive practices in international trade.

With this combination of policies we could expect Middle East production gradually to become an increasingly important factor in the supply of world markets, including our own. Domestic production would retain the competitive advantages not only of proximity to the world's most concentrated market and best source of supply for producing equipment and personnel, but also of operating within a stable and militarily secure political system that guarantees a maximum of protection to investments. It is likely that large integrated producers will always seek to hedge their riskier foreign holdings with substantial domestic holdings and activities. But as American production and especially exploration costs continued to rise in comparison with those of the Middle East--as they are bound to do--we should expect a slow tapering off of American production and eventually a situation where even the American market was supplied predominantly with foreign oil.

Under such circumstances the better American fields would certainly continue to operate profitably, though on a gradually diminishing scale. The American refining industry, too, would continue to flourish and possibly even to expand, though it would tend to grow more dependent on foreign rather than domestic crude oil production. But wildcatting would naturally tend to diminish in the relatively unpromising areas at home and would be encouraged instead to migrate abroad. Industry generally would be more benefited by the fact that American consumers were able to satisfy their fuel needs at low cost than it would be damaged by the decline of domestic production. And the various states and the federal government would continue to derive a very large amount of revenue from taxes on the sale of gasoline.

And to what extent would our strategic interests be served thereby? Obviously the strain on our total American petroleum sources would be relieved. Petroleum would remain in the ground--and thus, presumably, available for oiling another war--which would otherwise be withdrawn and consumed for ordinary peacetime pursuits, including a vast amount of pleasure driving. Enough oil would certainly be saved to postpone indefinitely the need of recourse to synthetic production for war emergencies.

But there is one disturbing element which upsets our calculations. Oil in the ground is not necessarily oil available for war. The oil must first be discovered, and the plant necessary for its withdrawal must be developed. This process normally proceeds concurrently with the exploitation of proved reserves. In other words, what is important for a war emergency is not our total oil resources but our proved reserves, and not only our proved reserves but also the productive plant for their exploitation. Now, the building up of large proved reserves takes many years of time. During the recent emergency it was our great good fortune that the immediate pre-war years saw a rate of new discoveries which considerably outran current production, but the development of 20 billion barrels of proved reserves could not have taken place overnight. It could certainly not have taken place with anything like the rapidity with which we built up a huge airplane production plant or an equally vast shipbuilding output.

From the strategic point of view, the drawback of the program outlined above as most advantageous economically is that, unless qualified by special measures, it would put our domestic oil production on a liquidating basis as concerned proved reserves. For, as already pointed out, the activity which would be chiefly discouraged by a vast inflow of cheap petroleum from abroad would be not the production of those of our richer fields which are already proved and developed but our domestic exploration. Production would diminish only gradually, but the rate of discovery of new fields might decline quite drastically. The net result would be rapid diminution in our fund of proved reserves. Under those conditions, a new war emergency would find us totally unable to fill our oil needs from American resources.

The solution most congenial to the independent oil producer, and perhaps the only practicable one, is that we must at all costs keep a crude oil production industry going in this country on a high level of operations. Under the conditions which will obtain in the future, that almost certainly means, not too distantly, a high tariff or quota system of protection on crude petroleum. Forcing American demand to rely predominantly upon American production will stimulate the most thorough kind of domestic exploration; and when in the end exploration becomes too costly in view of diminishing promise of new discoveries, it will stimulate the creation of a large synthetic plant which, with supplementary crude oil production, will be adequate to fill our needs. It might be observed, incidentally, that the

development of a synthetic industry, once the processes have been perfected and the pilot plants established, can be pushed through fairly rapidly--more rapidly than we can build up proved reserves of crude petroleum.

If that is the only answer, then the additional cost to the American consumer is not too great to be borne. The limit to what that additional cost will ultimately be is determined by the minimum cost of large-scale synthetic production from coal. If that means that the ordinary motorist's gasoline will cost him five cents more per gallon, then he must accept that additional cost in the same way and for the same purpose that he accepts the financial burden of his army, navy, and air force.

Unfortunately, however, the disadvantages of this plan are not economic alone. First, to promote domestic exploration by increasing, or at least maintaining, the rate of consumption of the domestic product is like trying to lengthen a rod by adding to one end while rapidly whittling away the other. Secondly, such a system would make the large-scale availability of secondary sources contingent upon relative exhaustion of primary sources. Thus, when synthetic production does become our chief domestic source of liquid fuel, there will be no great fund of crude petroleum left to fall back upon. And since synthetic production is more costly than production from petroleum mostly because it requires a good deal more manpower, it is hardly the best kind of source to have to rely upon in wartime. It is probable too that the most economic forms of synthetic production would mean a much greater spatial concentration of facilities, and thus higher vulnerability to air attack, than is involved in the production and refining of crude petroleum.

Suggestions for Domestic Policy. We are, therefore, on the horns of strategic dilemma, and the solution of this dilemma depends on a judicious choice among various alternatives, a choice in which economic as well as strategic goals are as far as possible reconciled but where the latter are never unduly subordinated to the former. And the thoroughgoing analysis upon which such a choice must be based has scarcely even begun.

We do not, for example, know what can be accomplished by a system of subsidies. In theory, at least, the best and most rapid way of expanding our domestic proved reserves is to relieve the strain upon our domestic resources by permitting foreign oil to compete freely with domestic oil on the American as well as world markets and at the same time to promote new domestic exploration, when necessary, by some system of government bounties. Only in that way can the apparently inevitable correlation be broken between cheap oil imports and languishing domestic exploratory activity.

Our Congress, to be sure, is allergic to the idea of subsidies, always preferring the concealed and much less efficient form of subsidy embodied in the protective tariff. In this attitude it is bound to be ardently supported by most of the American oil industry. And it must be conceded that the history of direct subsidies in the case of the outstanding example of its use to support an American industry--that of marine shipping--does not inspire one with the desire to see the practice generalized. On the other hand, the relatively indirect forms of subsidy devised to promote the expansion of the American air transport industry have been on the whole effective in achieving their purpose without encouraging rank dishonesty on the part of the recipients of the benefits. In any case, while subsidies may be wastefully administered, and are often devoted to ends of questionable value, most protective tariffs are inherently wasteful even as a means of securing the

(usually wasteful) purpose for which they are devised. And in the case of petroleum we have seen that there are special objections to their use--the same kind of objections which apply to the use of tariffs to further exploitation and hence disappearance of any limited and irreplaceable natural resources.

It may be true, as some oil men have insisted, that it is impossible to devise an administratively feasible system of subsidies for encouraging genuine oil exploration.²¹ But whether or not that proposition is true must be tested by study and experiment rather than prejudice, those responsible always bearing in mind the evils of the tariff alternative. The question is not a problem for this year or next. There are no present signs of diminishing exploratory activity in the United States and certainly not in the rest of the Western Hemisphere. It may be five years or more, depending on many factors affecting supply and demand, before the issues become critical. But if we are to have the answers when the critical time arises, there is no time like the present for beginning our study.

The same principle applies, though with less urgency, to the problem of promoting the development of a synthetic oil industry in the country. While the Bureau of Mines, in collaboration with the armed services, has already devoted some \$30,000,000 to research in this field, the burden of the work has thus far been carried by private industry. But private industry cannot reasonably be expected, without direct encouragement, to keep the nation's strategic interests paramount among its motives. And the expectation of economic benefits deriving from research in synthetics is contingent upon expectation that none of the policies advocated in the paragraphs immediately above will be carried out. If the government should resist pressures to raise the tariff on petroleum or petroleum products, or if it should begin considering ways of assisting domestic oil exploration, the interest of private industry in synthetic production of liquid fuels would certainly fail to develop and might even evaporate. Considered economically on a competitive basis, the feasibility of large-scale synthetic production depends on prices for crude petroleum reaching much higher levels than those prevailing today. From the strategic point of view, it might be desirable to lay at least the foundations for a synthetic industry as an emergency standby considerably before such levels were reached, and preferably to do so while taking measures to prevent their ever being reached.

Substantially in the same category as synthetic production are the petroleum resources of the American continental shelf. Large oil companies may feel they can afford the luxury of preliminary exploration, such as they have been carrying out thus far. And on the basis of the successful over-water operations at Lake Maracaibo and to a lesser extent off Louisiana and California, there is even some indication of economic profit from pushing out onto the shelf to a limited extent. But so long as private industry is persuaded that deep-water operations must remain uneconomic compared with alternative (synthetic) methods of deriving liquid fuels, they can hardly feel justified in expending large sums to devise the necessary techniques. Further study might indeed indicate that, given adequate synthetic production, most of the shelf could well be written off as a meaningful source of petroleum even for an emergency. But until such study is made, and until the country is assured of a standby synthetic plant, the government cannot evade its

21. The same oil executives are of course not averse to continuation of the present taxing policy favorable to exploratory activity--a policy which was threatened during the war--and would presumably look benignly upon changes designed to make that policy even more favorable.

sequent and cogent defense of the system as a whole in the pamphlet Regulation Without Registration: The Oil Industry's Contribution to Our Economy, The Chase National Bank, 1941.

responsibility for seeing to it that the relevant research receives sufficient encouragement. If private industry prefers to carry it out on its own initiative, so much the better. Otherwise a definite government obligation is indicated.

The suggestions made above will no doubt prove offensive to those who believe ardently in keeping the government out of business, especially their business. One can feel a good deal of sympathy--as does in fact the present writer--for the considerations and motives which underlie that conviction, without agreeing with the conviction itself so far as it concerns petroleum. The American oil industry provides one of the best historic examples of the conspicuous initiative, vigor, and resourcefulness to be realized only in a free enterprise system. Its growth and its accomplishments are alike phenomenal, inspiring not merely respect but awe. Nevertheless, the fact is incontrovertible that the nation, through its government, has a very special stake in its supply of liquid fuels; and while there is much in common between the nation's stake and that of the oil industry itself, there are important areas of divergence. An oil corporation, like any other corporation, would after all be derelict in its duties both to its stockholders and to its consumers if it consistently placed strategic considerations above considerations of profit. It would probably even cease to reflect the unique merits of private enterprise if it did so. One does not have to impugn the patriotic or other motives of the leaders of the industry to assert that the issues with which they are dealing are too important to be left to them alone.

New Approaches to Conservation. One of the most frequently used words used in connection with oil exploitation is "conservation," the meaning of which has been permitted to remain highly ambiguous. To the oil industry the phrase "sound conservation" is more or less synonymous with "efficient production," and efficiency of production in any industry tends to be measured predominantly if not solely in terms of net monetary returns. A company producing crude petroleum is always interested in the most efficient production consistent with (a) maximizing the total long-term profit to be derived from the properties representing its current and potential reserves, and (b) meeting competition.

Both these considerations will obviously result in the withdrawal from the ground of less than the total which it is technically possible to withdraw. Methods of withdrawal will be adopted which will keep the cost per barrel of oil obtained as low as possible. The sliding scale of unit cost may operate in such manner that there is a greater net profit to be derived from a given oil field in attempting to withdraw only 40 per cent of the total amount present in the ground than to attempt to withdraw, let us say, 60 per cent. Competition, both domestic and foreign, will of course put a ceiling on the level of unit cost which can be accepted for any given well or field.

The terrible wastage in the old days which commonly resulted from the unrestricted sway of the "rule of capture" has now been greatly modified by various state conservation laws coordinated under the Interstate Oil Compact. The system of proration operating under the Compact has been held up as a model of "regulation without regimentation," and indeed the system does have unique merits which entitle it to respect.²² It makes no difference today that in entering it the companies

22. A good brief description of the system is contained in a pamphlet by Joseph E. Pogue entitled Economics of the Petroleum Industry (printed and privately distributed by the Chase National Bank, 1939), pp. 17-30. While in this and other writings Mr. Pogue has criticized certain details of the present prorationing procedures, he has also written an eloquent and cogent defense of the system as a whole in the pamphlet Regulation Without Regimentation: The Oil Industry's Contribution to Our Economy, The Chase National Bank, 1941.

involved were less interested in conservation than in avoiding further drastic gyrations of crude oil prices; the system fully justifies itself by its achievements as a conservation measure, and perhaps the chief objection one can legitimately raise against it is that it does not go far enough. It relies fundamentally on the conservation laws of the individual states--which are after all competing with each other in terms of taxes and royalties--and some states have been conspicuously backward in producing and implementing the necessary legislation. The first basic question is whether state regulation is not fundamentally anachronistic in respect to exploitation of the nation's oil reserves. Certainly the constitutional considerations which may have accounted for it originally have been substantially eroded by Supreme Court decisions, especially in respect to a commodity which enters so markedly into interstate commerce as oil. Equally basic is the question whether the criteria determining "sound conservation" should not be re-examined. Are we getting the most possible oil as well as the most out of our oil?

Conservation in Consumption. In general usage the implications of the term "conservation" as applied to petroleum are concerned exclusively with production. Perhaps it is time to concern ourselves with the problem of conservation on the consumption side. The United States has long been using about thirty times as much petroleum and petroleum derivatives per capita as the rest of the world, and about six times as much as the United Kingdom, which leads Europe in per capita consumption. Since World War II, the disproportion in per capita rate of consumption has undoubtedly been widened. Even the usually sober London Economist has questioned the "God-given right" of the American people to go on consuming some two-thirds of the world's total supply of petroleum.

Executives of oil companies, when pressed on the question of safeguarding our resources, have been known to exclaim that the American consumer was altogether too wasteful with gasoline and that his consumption should be curtailed. Obviously they are not serious about it, or the advertising of their companies would take a sharply different tack. Certainly there are many industries which are interested directly or indirectly in maximizing demand for liquid fuels and which attempt to do so by every form of advertising propaganda. Is or is not such stimulation contrary to the national interest?

The question is not easy to answer. The Calvinistic approach will not necessarily mean greater availability of liquid fuel in a crisis. A production industry geared to a large civilian demand is an industry with large capacity--precisely what is necessary in an emergency. So long as we have practically unlimited non-petroleum resources of liquid fuel to fall back upon when and if the time comes--not to mention the extraordinary petroleum resources of the Middle East--there seems on the surface to be little reason, moral or otherwise, to attempt to inhibit American consumption.

However, there are special possibilities of danger which demand attention. First, an expansion of civilian demand which was satisfied increasingly by imports from overseas would be a cause of embarrassment in the event of a sudden cessation during wartime of those imports. While civilian demand is generally elastic and subject to drastic downward revision during war, elasticity or flexibility are always relative. In general, the larger the peacetime demand, the larger the irreducible minimum of civilian consumption in wartime. The second point follows from the first. Different uses for petroleum products have widely varying degrees of elasticity. Demand for automobile gasoline is fairly elastic, not so much

price-wise as in terms of government regulation.²³ Much ordinary driving either is for pleasure or is a luxury form of necessary transportation. The demand for liquid fuel for residential heating or for various forms of public transportation, however, is of quite another character.

An attempt on the part of government to influence civilian demand during peacetime hardly promises much success, and unless such an attempt were based on a most thoroughgoing analysis it might easily do more harm than good. On the other hand, any well-rounded oil policy could not afford to omit consideration, at least on the level of continuous scrutiny, of the consumption side of the issue.

American Interest in Middle East Petroleum. The current great interest in the oil resources of the Middle East and the complexity of the issues affecting that area demand special comment. It is not arguing an isolationist policy concerning the Middle East to insist that the direct strategic value to the United States of those resources has been decidedly overstressed. Certainly the national interest in freeing and thereby expanding international trade and in securing optimum investment opportunities abroad for American nationals is one which can stand on its own feet. That interest is particularly marked in the case of a commodity like oil, of which the United States is among nations far the greatest consumer. Moreover, it is also clear from the foregoing pages that the oil of the Middle East is by no means without strategic significance to the United States, although in a different way from what has been generally assumed. What is important is that we keep clear in our minds the degree and character of the interest, whether economic or strategic or both, and that we distinguish between them with a view to determining what policies are worth their attendant risks.

An economic pattern so complex as that involving the world-wide production and consumption of petroleum and its products is bound to show conflicts enough on purely commercial grounds between producers on the one hand and consumers on the other, and between different groups of producers. To a much lesser and by no means alarming extent, there is likely also to be divergence of views between governments because of their legitimate concern with the commercial interests of their nationals. Such differences on both the domestic and international level, while occasionally trying, are nevertheless wholly familiar and natural, and any critical problems which arise out of them can usually be resolved by resort to principles and policies long since established and therefore enjoying the maximum of acceptance. Certainly any attempt by other nations to undermine or destroy those principles warrants intelligent and vigorous resistance.

The interposition into the complex of oil interests already existing of the purely strategic interest of the American government must result in a situation where the strategic interest finds itself allied to some private interests and in conflict with others. The latter are certain to prove exceedingly articulate. The strategic viewpoint is therefore likely to be accorded more validity and to receive greater consideration by our own law-making bodies and the public, and perhaps by the public opinion of other nations, if it remains unadulterated, that is, free of concern with other than strategic interests. There is no harm--on the contrary much good--in pointing out how the strategic interest coincides with other (economic)

23. It is responsive also to cyclical fluctuations in income, but this point is not very relevant to our problem, except in so far as cyclical variations result in the creation of "excess" capacity.

kinds of public interest where such coincidence occurs, but that coincidence should be the result of accident rather than design and should be presented as such. Otherwise the claims of the opposition will be much more difficult to answer.

The case for a strong American position in support of American nationals interested in developing and exploiting the oil resources of the Middle East has been admirably and eloquently stated, on predominantly economic grounds, by at least one State Department official.²⁴ His statement understandably plays down American strategic interest in the same pursuit, but we know from other observers of the policy-making machinery that strategic conceptions of a more or less random character have greatly influenced the policies in question.²⁵ To repeat, there is no reason why economic considerations should be unaccompanied by strategic considerations and vice versa, so long as there is a minimum of confusion between them. And to repeat further, the real strategic importance of Middle Eastern oil depends on how its exploitation affects the availability of domestic (i.e., Western Hemisphere) resources and facilities for the large-scale production of liquid fuels. In other words, strategic policy concerning Middle East oil is meaningless except in terms of the comprehensive domestic oil policy which is designed to supplement it.

There is one exception to the last stated proposition which may become an important and possibly a governing one. At the beginning of this paper the atomic bomb was in large measure dismissed from consideration on the grounds that governments could not yet feel they knew enough about its ultimate consequences upon strategy nor when those "ultimate" consequences might come into being. However, if in the course of further study it begins to appear that the only kind of large-scale conflict worth considering by strategic planners is one of intensive but brief hostilities, it would follow that the only militarily useful gasoline was that which was stock-piled beforehand in finished form. The many objections thus far raised against the feasibility of stock-piling petroleum or its products would not apply to such a situation. In that event, it would make relatively little difference where the stock-piled gasoline had originally come from. We could then, so long as the stock-pile was provided, pursue a foreign oil policy which was largely divorced from strategic considerations. The atomic bomb threatens indeed to put a quietus on all our problems, but any slight gain on the credit side deriving from its existence is surely not to be scorned.

The problem of developing and implementing a coherent and comprehensive national oil policy remains before us. It must be an eclectic policy, and this paper has attempted only to present some of the considerations by which its formation must be guided. Although these considerations apply also to certain questions which must be answered immediately, such as the proper position for the United States to take in the pending renewal of negotiations with the United Kingdom and with the other United Nations concerning a World Petroleum Charter, they are more relevant to a long-term policy, which in turn must be based on a program of further intensive research. The policy which eventuates must, if it is to be practical, take due account of what is or is not politically feasible. As in all policies worthy the name, there must be a certain compromise between the theoretical ideal

24. John A. Loftus, "Oil in United States Foreign Policy," Department of State Bulletin, Vol. XV, No. 371, August 11, 1946, pp. 276-81.

25. See Herbert Feis, Seen From E.A., New York, Knopf, 1947, pp. 93-190.

and the inevitable complex of prejudice and special interest which pursuit of the ideal activates. But if there has been any basic argument in this paper, it is that, in the special case of petroleum, compromise can too easily proceed so far as to produce only a negation of policy.

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22. Moscow Report, by Percy E. Corbett. June 23, 1947

Yale

Memorandum Number Twenty-Four

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A memorandum prepared on the basis of discussions at a week-end conference of the following:

Bernard Brodie
Percy E. Corbett
Frederick S. Dunn (Chairman)
Annette B. Fox
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October 23, 1947

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The main lines of American foreign policy are now becoming clear. The Truman Doctrine and the Marshall Plan alike testify to its essentially defensive character. So do the efforts to achieve international control of atomic energy and to find with the Russians a common basis for unified administration of Germany.

This country need have no fundamental conflict with the Soviet Union if Russian policy is similarly defensive. A world order in which no state, not even the United States or the Soviet Union, would find it possible to commit successful aggression would meet American security requirements.

To single out these two states for special mention is only to say that this is the age of the Big Two. They are not, fortunately, the only two. If they were, the power pattern of our time would be as simple as it would be frightening. If the Soviet Union came to dominate the Old World, it would soon be in a position to dominate the New. The greater material and human resources of Eurasia would make likely ultimate victory over the United States by any power which first won hegemony over the whole of the Old World.

It follows that the United States cannot afford to abandon Western Europe, the Middle East, and Eastern Asia to a Soviet Union which it could not then defeat in war. On the other hand, to the extent that these areas can be built up into great buffer zones, they will fulfill the defensive requirements of American security policy.

These simple propositions provide a test for the solvency of present United States foreign policy and a guide to the future shaping of that policy. It is a test which will be applied throughout this memorandum.

If the logic of this test of solvency is generally understood by those who think about world affairs, the present makers of American foreign policy can continue to count upon nonpartisan public support. This memorandum seeks therefore to state the rationale for American security policy in terms which will be understood and accepted by all who agree that security and not world domination is the proper goal of that policy.

I. The In-Between World

Its Buffer Function

The American interest is not to dominate non-Soviet Europe and the other areas of the Eurasian Rimland. It is to help the states of this in-between world help themselves. The inherent strength of many of them, and especially of those in Western Europe, is such that if they achieve economic recovery and political stability, they will no longer be tempting objects of aggression. Nor will they be so likely to furnish the battleground for a third and more terrible world war. Once strong, they would reduce greatly the number of points at which Soviet and American interests clash. They would perform a buffer function which it is in our interest and in theirs for them to perform.

Only a series of Soviet expansionist thrusts which revealed an unambiguous Soviet determination to dominate the world could in the present mood of the American people provoke a Soviet-American war. The likelihood of such a thrust in any given area is in inverse proportion to the degree of economic recovery and political stability which it has achieved. Thus, American aid which makes these areas

less tempting as objects of cheap and profitable aggression makes less likely a Soviet-American war.

To receive help from this country, a state should not be required to declare itself "on our side." It is enough that it demonstrate its political independence. The United States has little to fear from the growing strength of genuinely independent sovereignties in the in-between world. These states have a common interest in avoiding being the battleground in a new global conflict. If they are permitted to develop their inherent strength, they will pursue policies whose effect is to strengthen American defenses as well as those of every other nation with a similarly defensive policy.

Its Strategic Function

There is an argument against substantial economic or military help to those governments in the Eurasian Rimland and North Africa which are still genuinely independent. It is that these governments would be valuable allies in a European war only if the Rimland could be counted upon to provide bridgeheads from which American offensives against an Old World enemy might be mounted.

In the present fluid state of military technology, it is by no means certain that there are in the Eurasian Rimland such defensible bridgeheads. Ultimate American victory would then depend on the United States maintaining and developing its present lead in the field of long-range weapon carriers. It could then win only by striking at the center of enemy power from New World bases. Warfare would be intercontinental in character. Those who foresee this eventuality urge that America's military resources not be dissipated in supporting in peacetime states which are bound to fall to the enemy in the initial stages of a new war.

Military analysts cannot, however, yet be sure that the periphery of the Eurasian land-mass either can or cannot be defended. The military implications of the invention of atomic weapons and other new weapons now being developed are not yet fully understood. The darkness that shrouds the strategic interests of the United States, say a decade from now, counsels "keeping the future open." Even in the narrowly strategic terms of its possible bridgehead function, the in-between world is an area from which it would be folly for the United States to withdraw.

Its Military Potential

Other military considerations point in the same direction. Areas of great inherent military potential must, if possible, be denied to a great power competitor. Whether or not they would be overrun in war, no power of the first rank must be permitted to develop them in peace as part of its war machine. Nor should it be given the opportunity in time of peace to stamp out the political leadership which would provide fierce underground resistance to an invasion from whatever direction it came.

If, for example, the United States relaxes its efforts to keep Soviet forces from overrunning the whole of Eurasia, the still independent governments will be tempted to throw in their lot in advance with the Soviet leaders; for they will believe these men to be their future masters. The worst eventuality possible, a "coordinated" Europe serving as an industrial supply base for a militant Soviet Union, would then be realized.

Success in keeping any of the states of the Rimland free of alien control would be of enormous military value over and beyond its bridgehead value. Military power bases in Europe could, for example, much more efficiently check the spread of aggression through Europe than could military power which had to be applied from across an ocean. Especially if the United States is to concentrate on developing its air arm is there an American interest in having the Rimland areas support substantial land forces.

Military considerations thus reinforce the political considerations which favor American support in the in-between world of a group of productive and genuinely independent states. Not even the United States is so strong that it can be indifferent to the fate of less powerful states who would be its shield in time of peace and its allies in the event of total war. But how much aid and what kind shall be extended to the peoples of Europe and Asia? And to whom and under what conditions shall the aid be extended?

Aid to Western Democracies

Western Europe (including Britain) alone of all the areas in the in-between world has the industrial base to support large modern military establishments. From it more than from any other area must the United States receive help in checking the threat of Soviet expansion. It more than any other area has constitutional traditions which favor the maintenance of free institutions.

The American interest in keeping Western Europe democratic is even greater than the interest in rebuilding its military potential. A powerful but anti-democratic Western Europe would be as much of a threat to American security and American liberties as a powerful and free Western Europe would be a bulwark. Its revival must be the first object of an American foreign aid policy which goes beyond merely alleviating human suffering.

Among the Western democracies, it is Great Britain whose recovery is most important. Her economic strength and political influence have declined even more than seemed probable at the end of the war. At the same time, new developments in military technology render the home islands less defensible than ever before. But deteriorated as the British position undoubtedly is, Britain is still the strongest of all the United States' prospective allies. To abandon Britain is to abandon all of Europe and the Middle East. It is to make a final determination to go it alone. The United States would in a real sense be isolated. It would not have returned to the isolationism of irresponsibility and of pretending that the rest of the world did not exist. Its position would be the isolatedness of having to rely on one's own armed strength, not necessarily from confidence as to its adequacy but from lack of confidence in the availability and military importance of other sources of strength.

The United States should not squander its resources on a bad bet. If strategic planning and official foreign policy were based on a calculation of a Britain-in-being during another war and if Britain were promptly lost at the outbreak of that war, the economic, military, and psychological consequences for America's fighting capacity might be very serious. Consequently, if it is believed certain that any military investment in Britain would quickly be lost, it might be better for this country to husband its strictly military resources and plan from the beginning to go it alone.

A negative judgment as to Britain's defensibility in a new world war would not, however, greatly weaken the case for large-scale economic aid to Britain now.

The British experiment in socialism has so far been carried on without impairing the functioning of her democratic institutions. So long as this is true, capitalist United States has a great stake in making British socialism work.

Few Europeans today believe that a free enterprise system is for them a practical alternative. If Europe is told, as it is likely to be told by the American missionary, that democracy and private enterprise necessarily go hand in hand, it may decide that democracy is a luxury which it cannot afford. A revived and self-confident socialist Britain would make a much better missionary on the European continent for the spread of democratic values than capitalist America. If capitalist-democratic America and socialist-democratic Britain want to win for the cause of democracy the minds and hearts of non-Soviet Europe, the economic power of the former must be used to strengthen the ideological appeal of the latter.

Subservience to the United States in the field of foreign policy should not be for Britain a condition of American economic aid. Britain as a free agent may be a more effective protector of American interests than a Britain which by public reputation is only a tail on the American kite. Because of her great vulnerability, she must be continually attentive to the necessity of maintaining the European order. Her resultant greater understanding of Europe's needs permits her to react very quickly to changing conditions in Europe.

Much of what has been said about Britain applies to the states of Western Europe with parliamentary democratic traditions of government. Every accretion in the strength of any of them, so long as they remain democracies, improves the United States security position.

There is, however, one striking difference between Great Britain and the continental democracies which must necessarily be reflected in the American foreign aid program. Britain's major parties are united in their wish to preserve her democratic systems. They are also united in their determination to check Soviet expansion. American aid strengthens Britain as a whole, and is welcomed both by the Labour government and its Conservative opposition. It does not greatly strengthen either major party at the expense of the other.

On the Continent the major political parties are not, even in the democratic countries of Western Europe, equally devoted to maintaining free government. Nor are they equally determined to contain the forces of Soviet expansion. Each of them has large, tightly organized and powerful Communist parties, and most of them have also important anti-democratic parties on the Right. American aid is not equally welcomed by all parties, and its effect on the balance of political forces within each country is very great.

Care must be taken lest American action (or inaction) be extended under conditions which affect adversely the political fortunes of the pro-democratic elements. A government which accepts American aid alienates what Communist support it had. If conditions are set out of which the Communists can make political capital, it will lose other support. Unless the American aid is substantial enough to offset any net internal political disadvantage which the aided government suffers by receiving American aid, it had better not be proffered. But if the United States can find a way to help these countries regain economic prosperity and confidence in the vitality of their democratic political institutions, Western Europe will again play a bold and resourceful role in keeping the whole of Europe stable and pacific.

Resistance to Expansion by Infiltration

What was said about the internal political consequences of American policy to the countries of Western Europe applies with even greater force to most of the rest of the in-between world. From the point of view of internal constitutional and political arrangements almost all of the countries are in a state of extreme flux. A larger area of the world is now controlled by very unstable governments than at any other period in modern history. The former colonial world is everywhere loosening the ties which bind it to the metropolitan powers of Europe. In many of the formally independent states of Europe and Asia, the old governing arrangements have broken down without being replaced by new ones which give promise of stability. In this situation, every action of the American government affects the emerging constitutional and political pattern. Furthermore, American membership and leadership in the United Nations compels the United States to take some kind of positive action in nearly every unsettled area the world over.

According to the traditional principle of non-intervention, no state has the right to meddle in the internal affairs of another. This principle, however, offers no criterion for choice of policies in those cases in which alternative American policies have sharply different and unequally desirable consequences for the internal political life of a country. The preservation of American security and the promotion of democratic values require that these consequences be foreseen so that correct choices can be made.

It is because Americans believe that Communists play "for keeps" that there is strong pressure for American intervention to prevent Communist seizure of the governments of any more countries. Once firmly established in power, Communists seem unlikely to relinquish that power as the result of the orderly operation of free political institutions. American action, the effect of which is to favor the emergence of non-Communist governments, does not guarantee the establishment of free governments but, in most cases at least, it offers such a prospect at some future date.

Because Communist-dominated regimes are, at least for the present, Soviet-dominated governments, it is as necessary to oppose the emergence of Communist-dominated governments as it is to prevent the spread of the area under Red Army occupation. The "invisible" aggression which culminates in a Soviet-engineered coup and the creation of a new puppet government subservient to Moscow is as much of a threat to American security as the visible aggression which occurs when an army of conquest crosses the borders of its intended victim.

Opposition to this invisible aggression is difficult because Soviet leaders know how to establish political control in a given area with a minimum of change in constitutional arrangements. A direct American interest in taking great risks to promote the spread of democratic institutions may be hard to establish, but since success in such an effort would check this invisible aggression, there might be a greater risk in being indifferent to the promotion of democratic values abroad. The issue of whether it is Soviet power, Communist ideology or totalitarian dictatorship which is being opposed is academic.

Aid to China

China presents what is perhaps the most difficult case of all. The Nationalist government of Chiang Kai-shek and the Communist regime established over much of North China are engaged in what promises to be an interminable civil war. The

United States is unwilling to see the Communists triumph and the Soviet Union is unwilling to see them lose out completely.

Because China's Ruhr (Manchuria) is adjacent to Soviet territory, the United States is in an even less advantageous position to reach an accommodation with the Soviet Union over China than it is over Germany. But to give unconditional support to the Nationalist government may be to establish even more firmly in power the most unprogressive elements in the government. These are the elements whose presence in the government makes it impossible for a coalition regime to bring hostilities to a close.

Perhaps the least unsatisfactory of available alternative policies would be to give the Nationalists the minimum support necessary for the government to maintain itself in approximately the area now under its control. Beyond that, additional American aid might be conditioned on the carrying out of internal social and political reforms. This limited aid policy would at least keep the future open until a more constructive policy appears feasible.

II. The Instruments of Policy

Military Strength

The traditional instrument of diplomacy is representation backed by a willingness to use armed force. It is not by itself effective in countering this "expansion by infiltration." Nor is it by itself of great value in nursing back to political and economic health the democracies of Western Europe. It must be supplemented by material and financial aid, by a vigorous public information policy to make American aims clear to the world, and by an imaginative use of the machinery of the United Nations.

But the traditional instrument is still indispensable. No amount of foreign economic aid and no protestations of the purity of American foreign policy aims can be a substitute for willingness to use armed force supported by capacity to use armed force. To manage tense Soviet-American relations over a protracted period without permitting them to degenerate into war will require large outlays of capital for national defense.

Congress will speedily agree to generous appropriations for defense in a war crisis, but maintaining American security within the framework of peace requires that these outlays be made in time to prevent the war crisis from occurring. Furthermore, they have to be made at the same time that huge appropriations for foreign economic aid are required. Even some of the bitter Russophobes have not yet accustomed themselves to the idea of an enormously expensive military establishment in peacetime. Since the Red-haters and the Red-baiters are frequently recruited from elements of society with a pro-economy bias; they may for tax reasons show an attitude of niggardliness toward the armed services which contrasts strikingly with the bellicosity of their public utterances.

So far as military outlays are concerned, the economy-mindedness of the Right is likely to be reinforced by the pacifism of the Left. The Leftist-pacifist group professes to believe that far-reaching disarmament by the United States will allay Soviet suspicions and fears of encirclement, permit tensions to relax and bring about a new era of collaboration.

If both peace and essential American interests are to be preserved, the size and quality of the American military establishment must be such as to leave no doubt that the United States could in war protect those interests. It has been normal for the non-expansionist great powers of Europe for centuries to maintain in peace as well as in war a substantial military establishment. The succession of challengers to the European political order, Louis XIV, Napoleon, Bismarck, Hohenzollern, and Hitler, has habituated them to protect themselves against danger at all times. It is a new experience for the United States to feel insecure in a period of peace. It will be difficult but essential, if unnecessary war is to be avoided, to accustom ourselves to prolonged periods of high military expenditures characterized by tension and conflict short of war.

Foreign Economic Policies

The difficulties of securing from Congress in advance of a war crisis adequate appropriations for national defense are as nothing compared to the difficulties of securing appropriations adequate to bring about the economic rehabilitation of the in-between world.

The limits of effective American action in the field of foreign economic aid are far more likely to be set by budgetary considerations than by policy declarations. A policy declaration which does not command Congressional support to the extent of Congressional willingness to vote appropriations adequate to implement the policy is not one which the world will heed. The United States acquired in the thirties a reputation for declaring high principles without making precise commitments to implement them. It is a reputation which has to be lived down if the United States is today to assert effective world leadership. The American government is now under a special compulsion to make its words and acts conform.

By its words, it is committed, if its conditions are met, to a far-reaching program of economic reconstruction in non-sovietized Europe. Its political stake, in terms of improving the American security position, in this reconstruction is so great that this is a poor place for parsimony. There is never any justification for extravagance, but whatever can be efficiently spent in rebuilding a free Europe is money well spent.

As soon as possible, foreign economic aid must be shifted over from a palliative to a positive basis. Doing out minimum sums on an ad hoc basis to alleviate the most critical emergencies has failed to bring about a general restoration of peacetime economies or to get the flow of international trade started again. Palliative grants of credit frequently only foster corruption, complacency and inept leadership.

It has now become axiomatic to say that a non-Soviet Europe must be reconstructed as a whole. It must itself plan as a unit and the United States must in turn make allocations of funds to individual countries and set conditions for extending credits which reflect its general plan for the whole area. That will be the exact cost to the American taxpayer of an aid program of minimum adequacy is to be determined only after expert and detailed analysis. That the cost must be of the order of several billion dollars a year for several years is already clear. This indicates the political dimensions of the problem which the Truman administration must solve if it is to bring about European revival.

A Congress bent on cutting taxes will see in a costly foreign aid program an especially attractive opportunity to economize. Here is an additional reason why a policy of firmness vis-a-vis the Soviet Union, a policy which must be backed up by both an efficient military machine and a constructive foreign aid program, must be based on the understanding support of broad elements of American opinion.

If the foreign aid program is not based on such understanding, there is a further danger. Its beneficial effects could be more than cancelled out if United States domestic economic policies are developed without regard to their political consequences abroad. This country will be condemned for any depressions abroad which its own failure to control the fluctuations of business cycle at home produces. It will also be condemned if it produces depressions abroad by adopting autarchic policies to fight depression at home. Either the mass unemployment of uncontrolled depression or the creation of employment opportunity by autarchic means would deny the in-between world access to the American market and condemn it to a lowered standard of living.

Ideological Resources in Two-Power Competition

One cannot know with certainty when the basis of Russian opposition to the United States is the ideological struggle of communism versus capitalist democracy and when it is merely great-power political competition, but it is a useful corrective to overemphasis on ideological objectives to ask how different Russian foreign policy would be if her interests were purely strategic. The drive to consolidate the Soviet position along the defense line of Stalin-Trieste and the momentarily quiescent drive for access to ice-free ports would account for intense struggle whether by traditional or by ideological means in Central Europe and the Middle East. Whatever the fundamental basis of conflict, however, ideology is an important weapon in the Soviet armory. Can the United States counter ideology with ideology?

The various elements of the American ideology are not equally valuable as bases for the United States public information policy abroad. Toward the peoples of the in-between world, we should be chary of saying "Be as much like us as possible." We should say instead: "So long as we remain strong, you can be what you want to be." This means a minimum of stress on the virtues of a free-enterprise system and more stress on self-determination and the four freedoms.

If the United States wishes to counter the spread of Soviet-dominated communism, it is important to remember that not all the alternatives to Communist-dominated governments in the in-between world are equally desirable from the point of view of American interests and the spread of democratic values. If the left liberals are not to be driven into the arms of the Communists, they must be offered the prospect of orderly participation in the political life of a country. Thus, extreme Rightist governments may be as undesirable as Communist governments if only because they make any kind of social change except revolutionary change impossible and thus help to create a revolutionary situation which the Communists know best how to exploit. The in-between world must not be denied the opportunity to work out an in-between way of life.

The Truman Doctrine can provide no automatic guarantee that the United States will come to the aid of every opponent of Soviet expansion or infiltration. It is contrary to the American interest to arouse false expectations in areas beyond the range of effective American support. Except to the extent that

the United Nations can be used to help them, there may well be opponents of Soviet expansion in areas which are beyond the reach of effective American aid. What the doctrine does is to put the world on notice that the United States will help preserve free institutions whenever and wherever it feels able to do so.

In the ideological struggle, the Western powers would seem to have the upper hand in building support based on the symbols of national self-determination. Nationalism, in Europe at least, works for us and it is too easy to read it out as a powerful political force. Nationalism helped save England (and us) from Napoleon, from the Kaiser, and from Hitler. It may help save us from Stalin.

The United Nations

In so far as the United Nations organization operates to restrain the forces of aggression its action can only reinforce national action taken to reach the legitimate goal of American security policy. This goal was previously described as "a world order in which it would not be possible for either the Soviet Union or the United States to commit successful aggression." By working to make the United Nations strong, the United States objective would only be to deny to other countries what it is ready to deny to itself. It is therefore not out of cynicism that the United Nations is here considered as an instrument for forwarding the aims of American foreign policy.

The United Nations supplements but does not replace the traditional machinery of diplomacy and other existing institutions for the adjustment of interstate differences and for the maintenance of peace and security. It is valuable in providing a continuing channel for public communication between states. It is valuable in providing a forum for mobilizing world opinion so that governments will do only those things which they are willing to do publicly.

So long as the Soviet Union is anxious to remain a member of the United Nations, the United States can thus, through it, exercise a limited restraint on Soviet behavior even toward that state's immediate neighbors. The Iranian case demonstrates the point.

Through full use of the organs of the United Nations, the United States can win valuable support for its policy of checking Soviet expansion. The middle powers, for example, will more quickly support a call for collective action than an announcement of unilateral American action. By and large, the same policies which are pleasing to the middle powers (and the powers of the in-between world generally) are also pleasing to elements of American opinion which are quick to call imperialistic any vigorous unilateral United States action. If care is taken to phrase American security policy in collective terms, its essentially defensive character will be manifest and the policy will win support from those sensitive to charges of "power politics."

This last point may be restated in somewhat different language: In the maintenance of security the United Nations can play an important role for all states but especially for the United States. In other countries in which the symbols of "alliance" and "foreign entanglements" have less negative connotations, a national security policy more easily wins broad support if stated in narrowly national rather than collective security terms; but the United States needs the United Nations to keep itself united behind a rational security policy.

The United Nations can thus be used in enormously constructive ways. But there are ways in which it should not be used. It should not, for example, be used prematurely as a forum for denouncing another state's position simply to consolidate opinion at home. To use it this way is to make conciliatory diplomacy or any kind of further bargaining less easy.

The powerful arguments against "secret agreements secretly arrived at" do not apply to secret disagreements discovered as a result of informal conversations and kept out of the arena of public controversy so long as there is hope of narrowing the area of disagreement by informal exchange of views. Not only does premature airing of controversy exacerbate relations, but it drives governments to adopt publicly fixed positions from which, for reasons of prestige, they find it difficult to retreat in the interests of compromise and settlement.

Nor should the United Nations be used simply to force those countries not directly participating in a controversy to stand up and be counted. They will resent being forced to do this, and their future possible mediating function in a two-power world will be reduced. It will almost always be possible for the United States to rally to its side on a really critical issue enough votes to outvote the Soviet Union in the General Assembly of the United Nations. It should not on that account seek to isolate the Soviet Union by repeated votes. Such votes only demonstrate to that country how important it is that it retain the veto unimpaired. The United States should, on the other hand, be psychologically prepared to support the Soviet Union where it thinks the Soviet Union has a good case.

There is another reason why the United Nations should not be used as a scoring device in a Soviet-American struggle. The powers of the in-between world dislike having to choose between taking a public position offensive to the United States and one offensive to the Soviet Union. On every issue there should be advance informal consultation among the permanent members of the Security Council in order to reduce the area of public disagreement and reduce the number of times the smaller powers will have to make unpleasant choices.

Another misuse of the United Nations would be to attempt to use its General Assembly as an international legislature. Only by recognizing that the General Assembly is not an international legislature but an instrument of public diplomacy can that body be kept from passing meaningless resolutions containing large numbers of symbols of universal but imprecise reference.

Finally, useful as the United Nations is, it is not yet ready to be used as an instrument of true collective security, and it cannot now be transformed into such an instrument. Through it, overwhelming force cannot be mobilized to take police action against an offending Soviet Union or an offending United States. In a true system of collective security, the force available to suppress the illegal use of force would be effective even against the greatest members of the international community.

The Big Two possess a political veto over decisions to undertake enforcement action through the United Nations which would exist whether or not the legal veto in the Charter is retained. Against either of these two, a United Nations decision would be enforced only by plunging the world back into general war. Tinkering with the veto language of the United Nations Charter will only exacerbate Soviet-American relations without, in any important way, increasing the authority of the United Nations or protecting its members against the major possible disturbers of the peace.

III. Soviet-American Diplomacy

We have examined the ways in which the United States can use its material and ideological resources to reconstruct the in-between world and curb Soviet expansionist tendencies. We have yet to consider the conflicts which now becloud Soviet-American relations.

The German Settlement

In many areas such as the Far East a de facto territorial settlement has been reached which can only within narrow limits be modified by negotiation and mutual concession. The Soviet Union is in possession of Sakhalin and the Kuriles and is firmly established in Manchuria and northern Korea. The United States has won permanent military control over Japan's Pacific islands and is at present in control of southern Korea. She occupies Japan proper but is committed to getting out.

In Europe, Soviet dominance over the whole of Eastern Europe is established. The Soviet Union will hardly be dislodged by diplomatic pressure alone. On the other hand, the United States has maintained its wartime position in the Mediterranean and has shown its willingness to act to keep Italy and Greece from falling into Communist hands.

With the ratification of the Italian and satellite state peace treaties, diplomatic activity will focus on the German settlement. It is here that the greatest opportunity exists for modifying the existing and mutually unsatisfactory status quo by direct Soviet-American negotiations.

The timing and character of future American diplomatic efforts to achieve a German peace settlement depend on three kinds of calculations: as to (a) the fundamental foreign policy motivations of the Soviet leadership, (b) the direction of future changes in the relative power positions of the two countries, and (c) the possibility of mutual concessions.

Soviet Policy Motivations

Soviet objectives are much in dispute, with presumably competent authorities in sharp disagreement. According to one view, Soviet statesmen have never permanently abandoned their revolutionary blueprint of a communist world order, and they may be expected to revert to that objective as conditions and circumstances permit. According to another view, the paramount aim of Soviet foreign policy is national security and nothing more, and Soviet statesmen may be expected to encourage revolutionary movements abroad only in proportion as they feel themselves to be the target of aggressive policies on the part of other states, the United States in particular. Even if the second hypothesis is the more nearly correct (and it is by no means clearly established that such is the fact), the international consequences might be scarcely distinguishable from those that would flow from the first hypothesis, especially if Soviet rulers are, or should become, convinced that their country could never achieve security vis-a-vis powerful foreign states organized under the principles of capitalism and democracy.

Still a third view is that it is not now possible to make a final judgment of Soviet long-range plans for the simple reason that these plans are subject to

change. On this hypothesis, too easy success in attaining present limited foreign policy objectives, if indeed they are limited, would invite the artificers of Soviet foreign policy to develop a more ambitious program later. Thus, whatever view one adopts of the long-range objectives of Soviet policy, the United States must be prepared to stand firmly against Soviet expansionist pressures as they reveal themselves in the negotiations over Germany. This rules out a policy which would involve any further unilateral concessions by the Western powers. United States troops, for example, will stay in Germany and Austria as long as Soviet troops stay in either country.

Granted that the United States must in any case stand firm, can it simply wait with folded arms until the Soviet Union decides to "be reasonable"? It can afford to see the settlement of outstanding German questions postponed only if time is on its side, if the direction of future changes in the relative power positions of the Soviet Union and the United States is favorable to the United States.

Changes in Relative Power Position

A variety of considerations suggest that time may not be on our side whatever period is envisioned. In the short range, the political coup in Hungary suggests that the Soviet Union has not yet fully capitalized on the present instability of regimes in the in-between world. A policy of waiting passively would make remaining non-Communist regimes so unsure of ultimate American intentions that they would go far to avoid alienating the Soviet Union. For fear of doing this, they would probably not deal effectively with dissident elements at home and thus would prolong the period of instability which is giving Moscow continued opportunity for intrigue and expansion by instigated revolution.

In the longer range, we know that our present monopoly in the use of atomic weapons is a wasting asset and that in the absence of a general settlement, including the establishment of international control of atomic energy, the Soviet Union will at some future date also have atomic weapons. Finally, demographic trends favor the Soviet Union so markedly that few can believe that it has yet reached the zenith of its power. Together, these considerations would rule out a folded-arms policy, except as a temporary course of action to be followed once it had been decided to have a showdown with the Russians as soon as military preparations were completed and a convenient diplomatic crisis presented itself.

Basis for Exchange of Concessions

On the other hand, continued negotiation is justified only if there is some reasonable expectation that the Soviet position will be modified as a result of such negotiation. Is there a basis for mutual concessions on which such an expectation might be based?

The Soviet mood today is not the one of flamboyance and self-confident power which is frequently assumed. The conspicuous silence of the Soviet press on all questions relating to atomic weapons shows how sensitive the government is to any information which calls attention to the technical superiority of the United States. Hence, while it may be difficult for the Soviet government to retreat

publicly, it may be willing to compromise quietly. There may be concessions which the Soviet Union could make easily only if they do not look too much like concessions.

The Soviet government has never opposed in principle the reuniting of Germany and the ending of zonal administration; it has simply placed obstacles in the way of achieving that goal. No loss of face either in the eyes of the world or in those of its own people would be involved if the Soviet government now found it possible to bring Germany under a common economic administration and to agree to a reunited Germany under certain joint four-power controls. Here are concessions which the Soviet Union could make.

There are many reasons why, if it lies within the power of the American government to choose, it should be willing to pay a price for a united Germany (and a united Austria). Among these reasons are the following: (1) United and effectively neutralized, Germany would be a useful buffer between the zones of dominant Soviet and American influence; (2) the Germans would like it better so that the problem of enforcement would be less serious; (3) economic unity would hasten the economic rehabilitation of Germany and Europe, which in turn would improve the prospects for democracy and lessen the burden on the American taxpayer; and (4) the Western powers will want to prevent the advance Soviet position in Thuringia, so close to the Rhine, from being consolidated.

Taken together, these considerations may be so compelling as to justify further concessions in three fields in which the Soviet and American positions differ. The first is reparations. A concession here would increase the burden on the American taxpayer but would not weaken the American security position. The second is the question of the degree of centralization to be permitted in Germany when control passes back to German hands. Molotov's proposal that the Weimar pattern of distribution of power between the central government and the Lander be used as a basis of discussion seems fair.

The third is the matter of guarantees. The Byrnes Pact which embodied the American position in essence proposed a Big Four commitment to enforce the disarmament features of the projected German peace settlement. The Soviet government may legitimately inquire why the United States did not propose to commit itself to enforce the whole treaty, including those parts dealing with the German constitution and reparations. It may conclude that the proposal is in fact an invitation to undermine the settlement by suggesting to an evader that he first attempt to evade those portions of the settlement which are not guaranteed by the Byrnes Pact. There is room for an American concession here.

The United States can of course make no concessions which would permit the extension of Soviet hegemony to the Rhine whether it occurs by political coup or progressive subversion. But the concessions suggested above do not involve this danger.

A basis for mutual concession may then exist. Only by actual negotiation can the United States discover whether the price it would have to pay for a German peace settlement is a price it is willing to pay.

Unless the United States and the Soviet Union can agree as to how to keep Germany pacific and neutral, they would do better to keep her divided. They would need to keep her divided not only to protect themselves from each other but to keep a united Germany from taking advantage of continued Soviet-American disagreement and selling herself to the highest bidder.

This means accepting deadlock and building up Western Germany as the outpost of Western strength. American willingness, if necessary, to accept this alternative should increase the chance that the Soviet Union will in its turn make enough concessions to permit agreement on the bases for German unification.

Atomic Energy Control

The other critically important field in which the possibilities of direct Soviet-American negotiation have not yet been exhausted is the international control of atomic energy. An uncontrolled atomic arms race, if it resulted in two-way atomic warfare, would have consequences almost equally appalling for victor and vanquished. The basis for negotiation lies in the American knowledge that its present monopoly will not last forever and in the Soviet desire to bring to an end quickly its present position in the field of atomic armaments.

Scope of Negotiations

The progress of negotiations in this field has been slowed down by Soviet insistence that discussions be carried forward simultaneously with a view to regulating both atomic and the so-called "conventional" armaments. It has further been delayed by reiterated American insistence that the Soviet Union must agree to surrender its veto in Security Council actions to enforce an atomic energy control agreement.

For the large groups of Americans who think of disarmament primarily as a moral question, United States unwillingness to extend the arms regulation discussions to include close international control of non-atomic weapons has been a disappointment. They do not understand the political consequences of disarming before the structure of collective security has been completed. Nor do they understand the political advantage which a country like the Soviet Union would gain over the United States from all-round disarmament now.

Any restriction on the production or use of weapons based upon the most advanced technology will be welcomed by governments of states of less advanced technology. This is not a sufficient reason for abandoning efforts at atomic energy control; but it suggests the difficulty of extending arms regulation to cover the whole field of armaments without unduly strengthening the Soviet position.

If a reasonable underlying strategic balance is to be maintained, those countries for whom raw manpower is at present their chief military asset must expect to make as effective a contribution to all-round demilitarization as those whose military advantage is derived from their higher level of technology. If Soviet representatives again, as they did in the 1946 General Assembly, seek to embarrass the United States by calling for general disarmament, the United States should counter with proposals for quantitative limitations on manpower. The United States could thus regain the moral initiative. It may confidently be predicted that the Soviet Union would be as embarrassed by such proposals as the United States has been by Soviet proposals.

To seek to alleviate Soviet-American tensions by working for general disarmament and international regulation of all arms is to put the cart before the

horse. It would only weaken the capacity of the United States to curb Soviet expansionist tendencies.

The Veto and Enforcement

The United States position on the veto has rested on the assumption that enforcement of an atomic energy control agreement would be carried out by a vote of the Security Council after a violation had taken place. In fact, a state determined to undertake effective retaliatory action against an established violator would not be deterred by the negative vote of the violator in a Security Council decision ordering enforcement action. Nor should it have to wait for such a vote once the violation has been reported and verified.

The veto, therefore, will provide no substantial protection to a power believed to have violated its atomic energy commitments. The United States would gain little by winning Soviet assent to its surrender in atomic energy enforcement decisions. The Soviet Union, on the other hand, gains little from maintaining the veto unimpaired. If American concessions on this point would bring Soviet adherence to an effective international control plan, the concession would be well worth making.

Efficiency of Control Plan

What is essential is that no concessions be made to the Soviet Union or any other government which impair the efficiency of the control plan as an agency for keeping the American (and every other) government accurately informed as to the state of atomic preparedness of all other governments. So long as the control plan is then lived up to, the matter of enforcement and the problem of the veto do not arise. When violation is reported and verified, the veto would not prevent prompt and vigorous counteraction. Exercise of the right of self-defense and negotiation of pacts of collective self-defense under Article 51 provide legally available avenues for achieving this without disturbing the veto provisions of Article 27.

The warning against unnecessarily outvoting the Soviet Union in the General Assembly and in the Security Council applies with equal force to the formal votes in the United Nations Atomic Energy Commission. Votes are meaningless in the absence of Soviet-American agreement. We do not know whether or not the Russians want agreement and will pay a reasonable price for it but until we know that they do not, we must make every effort to reach agreement. Informal high-level bilateral negotiations may narrow the gap between the Soviet and American positions. It will certainly not widen it.

Meanwhile, disagreements "in principle" should not be regarded as having brought the effort at atomic energy control to a dead end. Nor should apparent agreement "in principle" be interpreted as meaning that negotiations have passed successfully through the critical stages. There is a great gap between "agreement in principle" among accredited negotiators and final ratifications in accordance with the constitutional processes of each signatory state by all indispensable participants.

Present Inadequate Knowledge

We do not really know enough yet to translate proposals into binding agreements. We do not even know that a control plan can be developed under which the Soviet system would be capable of being inspected. In any case, there will have to be a great deal more study and reconnoitering of each other's positions and defining of problems before the governments concerned can proceed to negotiate firm and detailed agreements.

The present stage of international negotiations is essentially to discover what an effective international control plan would look like if it were set up. The discussion of whether such a plan would be acceptable to all the indispensable participants may properly be postponed to another day. How long it may be postponed depends only partially upon calculations of the probable interval before another nation will have learned how to manufacture atomic explosives. It depends even more on the United States government having first formulated a technically complete control plan which it is prepared to accept and having carried forward conversations with powers in the in-between world to the point where their governments have agreed on a wholly voluntary basis to support the American plan as reasonable.

Protracted Tense Relations

This analysis of the basis for making a fresh effort at settlement of outstanding issues which divide the Soviet Union and the United States can give no promise of the ultimate success of such an effort. It does indicate that there is a chance for such a settlement.

Agreement on German unification or on any other issues growing out of the Second World War would not necessarily and probably will not in fact usher in a period of relaxed and friendly Soviet-American relations. But tense relations need not mean ultimate war.

A discouraging possibility is that tension in Soviet-American relations may be as much a product of conditions internal to the Soviet Union as external. Considerations of internal discipline may require that the world outside the Soviet Union be presented as encircling and conspiring. If it be true that the Soviet government cannot afford to have "good" relations with other powerful governments, the United States may gratify that government's need for bad relations by careful and hard bargaining. It will be more difficult but still not impossible to settle outstanding disputes even though the official Soviet attitude remains hostile.

Neither peace nor war with the Soviet Union is inevitable. A tendency to regard either as inevitable will increase the probability of war.

We must guard ourselves against coming to regard bad relations as so intolerable as to justify either an ill-considered escape to isolationism by abandoning Eurasia to the tender mercies of the Soviet government or a belief that war itself would be preferable.

The issue of peace or war may not be determined within a decade or two. The prospect of a generation or more of political tension and competition is a grim

one. If prolonged tension makes impossible the international control of atomic energy, then the United States will have to face frankly the prospect that war if it came would be two-way atomic warfare. But this prospect only makes it more imperative that no stone be left unturned in the American effort to avoid an unnecessary Third World War.

Meanwhile, so long as any major Soviet-American issues remain unsettled, the United States must develop its military strength and that of its prospective allies in a new war to whatever extent necessary to convince the Soviet government that time is not on its side. If two-way atomic warfare at any time becomes possible, the American people will be called upon for sacrifices in the interest of preparedness and reducing vulnerability that have before hardly been known to them even in war.

Whether this effort ought to be continued into and past the period when the United States atomic monopoly is being broken is a matter which requires separate treatment and upon which perhaps no final decision should yet be taken.

Meanwhile, only if the American people can keep their nerve by facing up to a protracted period of strained relations and hard bargaining is there a chance of their having their cake and eating it too, i.e., having the cake of maintaining fundamental American interests and eating the cake of maintaining them peacefully.

INSTITUTE MEMORANDA

1. Anglo-American Relations in the Post-War World, by William T. R. Fox, May 1, 1943
2. Two Plans for International Monetary Stabilization, by Jacob Viner, May 31, 1943 (Later published in revised form in the Autumn, 1943 Yale Review)
3. The Small Powers and the Enforcement of Peace, by Arnold Wolfers. August 1, 1943 (Later published in revised form in the Winter, 1944, Yale Review)
4. China's Military Potential and the Enforcement of Peace, by David Nelson Rowe. September 1, 1943
5. British Trade Policy and the United States, by Bert F. Hoselitz. October 8, 1943
6. International Air Navigation and Anglo-American Relations, by Percy E. Corbett. November 1, 1943
7. British and American Shipping Policies: A Problem and a Proposal, by J. Hans Adler. December 31, 1943 (Later published in revised form in the June, 1944, Political Science quarterly)
8. Moscow, Teheran, and International Organization, by Percy E. Corbett. March 1, 1944
9. International Politics and International Policing, by Grayson L. Kirk. March 10, 1944
10. The Outlook for a Security Organization, by Percy E. Corbett and Grayson L. Kirk. June 14, 1944.
11. The Foreign Economic Policy of the United States, by John B. Condliffe. September 25, 1944
12. Australia and New Zealand and the Security of the Pacific, by Stephen B. Jones. November 1, 1944
13. The Dumbarton Oaks Plan, by Percy E. Corbett. November 25, 1944
14. The Disposition of Enemy Dependent Areas, by Annette Baker Fox. March 1, 1945
15. International Economic Collaboration: Some Administrative Problems of the Proposed United Nations Economic and Social Council, by John B. Condliffe. April 18, 1945
16. Conflict and Compromise at San Francisco, by Arnold Wolfers. April 24, 1945
17. Africa and American Security, by Stephen B. Jones. August 15, 1945
18. The Atomic Bomb and American Security, by Bernard Brodie. November 1, 1945
19. The American Trade Proposals, by Klaus E. Knorr. October 28, 1946
20. United States Policy Toward Germany, by Arnold Wolfers. February 21, 1947
21. Communism in Eastern and Southeastern Europe, by Vernon Van Dyke. May 26, 1947
22. Moscow Report, by Percy E. Corbett. June 23, 1947
23. Foreign Oil and American Security, by Bernard Brodie. September 15, 1947

YALE UNIVERSITY
NEW HAVEN · CONNECTICUT

EUGENE H. KONE, *Editor*
Yale in World War II

Box 1303A, Yale Station

November 17, 1947

Mrs. Franklin D. Roosevelt
Apartment 15-A
29 Washington Square, West
New York 11, N. Y.

Dear Mrs. Roosevelt:

In reply to your letter of November 12th, the statement after your husband's name, "1934 Hon.," means that he received the honorary degree of Doctor of Laws from Yale University on June 20, 1934, thereby making him an honorary alumnus of Yale University.

I trust this answers your question.

If I can be of any further service to you, please do not hesitate to let me know.

Sincerely,

Eugene H. Kone

YALE UNIVERSITY
NEW HAVEN, CONNECTICUT

EUGENE H. KONE, Editor
Yale in World War II

Box 1303A, Yale Station

November 4, 1947

Mrs. Eleanor Roosevelt
U.S. Delegate to United Nations
2 Park Avenue
New York, N. Y.

Dear Mrs. Roosevelt:

Yale University, in addition to publishing a war history which will contain the biography of your husband, Franklin Delano Roosevelt, at some time in the future will dedicate a series of tablets in Woolsey Hall in honor of those who gave their lives in the Second world war.

The names of those men who will be so honored are now being supplied to the individuals preparing the memorial tablets. Will you please indicate whether or not the facts contained below are correct for engraving a permanent record:

FRANKLIN DELANO ROOSEVELT, 1934 Hon. *What does this mean,*
Commander-in-Chief of U.S. Army and Navy *Correct*
April 12, 1945, Warm Springs, Ga. *Correct*

It is essential that we have an immediate reply in this matter so the marble work will not be delayed. Please indicate your approval below.

Within a short time we shall also get in touch with you concerning your husband's biography mentioned above.

May I thank you in advance for your cooperation.

Sincerely yours,
Eugene H. Kone

EHK:dh

(Date)

- _____ The facts stated above are correct.
- _____ The facts stated above are correct as I have amended them.

(Signature)

ORIGINAL RETIRED FOR PRESERVATION

My dear Mr. Kono,

I have received your letter
of November 6th and the facts on my
husband are correct. However, I am not
sure what is meant by:

"Franklin Delano Roosevelt, 1934 Hon.

Will you please tell me what this means?

With many thanks,

Very sincerely yours,