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CHANGING PATTERN OF ECONOMIC POTENTIAL FOR WAR—INDUSTRIAL CAPACITY

31 March 1947

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THE INDUSTRIAL COLLEGE OF THE ARMED FORCES

WASHINGTON, D. C.

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PUBLICATION NUMBER L47-104

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DR. HUNTER: This is the last of a series of five lectures on the general subject of the changing pattern of economic war potential. The subject is "Industrial Capacity." The term "industrial" will be used here in its rather comprehensive sense as covering not only the production of finished goods, but also the production and processing of basic raw materials, agricultural production, power and transportation. This covers quite a little ground.

The emphasis in the previous lectures in this group has been on the present situation and the outlook for the future. My treatment of industrial capacity will be principally historical. Since my occupational bias is historical, I will work that to the full and shall present a graphic survey of the major developments in industrial capacity, as this is related to war potential, during the past several centuries. Attention will be concentrated on the European or Western World, for the reason that modern industrialism is almost wholly European in origin. The economic system which evolved in western Europe during the centuries from the fourteenth down to the nineteenth, the capitalistic system, has been progressively extended to most parts of the world.

Now, I propose to trace this development, as it relates to industrial capacity, by presenting cross-section views of the European economy at several stages, beginning with the feudal economy of the twelfth to the thirteenth centuries and then going by long jumps to the seventeenth century, the late nineteenth century, and the present time.

First let me make a couple of preliminary remarks. The war-making potential of a state depends on the surplus which its economy can produce in excess of the requirements essential for the maintenance of its economy. Of course, under pressure of a war emergency, civilians can be persuaded or compelled to tighten their belts. They can, and have on various occasions in the past, been reduced to poverty and starvation, by ruthless requisitioning, looting and other methods.

It is, of course, true, as Mr. Masselman has pointed out, that where the economy operates at a very low level of efficiency, there is not much reserve capacity; but in the more efficient economies there is a substantial reserve capacity which can be brought into play. It is, however, one thing to have a surplus and quite another thing to capture that surplus fully for the purposes of war. I think a review of wars through history indicates that in few cases have the available resources

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been exploited at all fully. Governments have commonly lacked the knowledge, the administrative machinery, and the power to capture this surplus. Furthermore, inadequate transport facilities in the earlier periods greatly hampered the use of otherwise available surpluses.

There is another thing that I want to stress at the outset also and that is that the economic potential is only one of the many factors which determine the war-making capacity of a nation. Economic factors must be seen continually in relation to political and social conditions, to administrative institutions, and to every other aspect of the prevailing culture, including religion and philosophy, attitudes and customs. Take, for example, such attitudes toward the conduct of war as the feudal view that fighting was a class privilege belonging to the landed aristocracy, and the eighteenth century view that wars should be conducted so as not to disturb the civilian population.

So much for preliminaries. Now I want to start with the feudal economy of western Europe in the Middle Ages.

We have at the outset a paradox--that feudal society was very warlike, yet it had an economic potential for war that was very low. Feudalism was, of course, the social system which developed to meet the needs for some measure of order and stability following the break-up of the Roman Empire. Lacking a strong centralized government, the weak sought the protection of the strong, the strong allied themselves in turn with the more powerful, and so on up and down the line.

In theory, feudalism was a very orderly system with an elaborate structure of classes, bound together by a system of mutual rights and obligations. But in practice it was very disorderly, on account of the difficulty of interpreting these rights and obligations. Or it was partly on that account. Another factor, of course, was the desire of the more ambitious lords to engage in a little empire building of their own. Finally, we must not overlook the dullness and monotony of life in the Middle Ages. Most of the landed aristocracy had very little to do to pass the time. They turned naturally to politics; and politics in the absence of a strong central government led to quarrels, which ended in petty warfare. The ordinary aristocratic diversions of riding and hunting were good training for combat in those days.

Now, through the process of mutual aggression and territorial aggrandizement there was a gradual concentration of political power in western Europe. Small feudal states were built into larger ones and these eventually into national states. Within the national states there was gradual centralization of power in the hands of kings, which was made effective through an expanding system of administration.

These developments were accompanied by a considerable amount of warfare; but this warfare was for the most part carried on on a petty scale. The economic and technological conditions of the time prevented

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armed conflicts from rising much or often above the level of localized warfare on a small scale and of short duration.

The medieval economy was marked by a high degree of local self-sufficiency. It was based on a crude and highly inefficient system of agriculture and very primitive conditions of transportation. Manufacturing was carried on almost entirely on the handicraft basis with hand tools and muscle power. Metals were scarce. They were expensive and they were difficult to work. Machinery and mechanical power were almost unknown in this period. This highly inefficient agricultural economy was barely able to supply an undernourished, threadbare population with minimum needs. The surplus of the economy was too small to support warfare except on a very limited scale.

Now let us jump down through history several centuries to the beginning of the seventeenth century. By this time a number of major changes had taken place in the European economy and in industrial war potential. By 1600 the relatively static agricultural economy of the Middle Ages was in the process of rapid dissolution in a large part of western Europe. The dissolving forces were those associated with the expansion of commerce, both in scale and in the extent of operations, and with the replacement of a bare subsistence economy by an exchange or money economy. The new order of things was associated also with the expansion of urban life and to some extent the growth of manufacturing; with the rise of a middle class of aggressive business men; and with the appearance of a new force of great importance in western civilization—capitalism, with its dynamic drives. These were the developments which brought a radical change in economic conditions in western Europe.

While economic changes were fundamental in the passing of this old economy, they were accompanied and assisted by significant political changes that have to be kept in mind. The most important of these was the gradual replacement of the petty feudal states with a growing number of large and powerful national states. This was the end result of the several centuries of petty warfare that I have referred to, warfare on both the political and military levels. In Spain, Portugal, France, England, and some other places we had these small states consolidated into a single large national state. In central and southern Europe the process proceeded much more slowly. Of course, in Germany and Italy it was not completed 'till the last quarter of the nineteenth century.

This process of building small states into large ones was accompanied and made effective by the centralization of power within the states. This centralization was effected by several developments. One was the creation of a standing professional army and navy, largely independent of and superior to the landed aristocracy. It was made possible, too, by the development of a central system of administration under royal control; and by the establishment of a system of a national taxation which made the king independent of the old feudal dues.

Here we see the close interplay of economic and political forces. We have a social and national unification, strengthening the central government. This aided and encouraged the growth of business and trade by providing law and order, by protecting property, and by protecting and promoting commerce. The expansion of trade in turn provided a broadened base for taxation and for government borrowing. The middle class provided the financial resources with which the royal governments were able to build up their power and authority.

Closely related to these economic and political changes that we see in operation at the beginning of the seventeenth century was one of the outstanding developments in world history. This was the discovery of the New World and the political and commercial expansion of Europe which followed. This development was a major factor in the shift of the center of political and economic power from the Mediterranean, where it had long been, to the Atlantic. It marked the beginning of a long struggle for colonial and commercial empire among the rising states of western Europe.

The principal factor behind the struggle for colonial empire was a desire to strengthen the national state by increasing its wealth through the addition of colonial resources and trade, and by freeing the nation from economic dependence on other nations, especially with respect to critical war materials.

With this background let us consider some of the principal elements in the industrial capacity for war in the seventeenth century.

First, in agriculture, we find a shift in progress from the old subsistence or self-sufficient agriculture to commercial agriculture, free from the traditional community controls which virtually prevented progress in the Middle Ages. As a result of the development of commercial agriculture, food supplies were obtained for the growing urban population to carry on trade and the beginnings of specialized manufacturing. Furthermore, with a price incentive brought into the situation, production could be stimulated to meet war needs, a condition that was hardly possible under the old economic system.

Next to agriculture in importance come the mining and metal industries of the time. Here we have many technological advances; nothing very startling, but the total result was a considerable improvement in productive efficiency. There were improved methods for making iron and for shaping iron, especially for military purposes—for the pikes, swords and other edged weapons, and above all, for the cannon and the hand firearms which did so much to revolutionize the art of war in this age. However, for most purposes the cost of iron was so great and the difficulty of shaping it was such that it was not widely introduced for commercial purposes at this time.

Equal in importance to the development of the iron industry, and perhaps in the long run more important, was the great expansion of gold and silver production, to some extent in Europe, but more largely, of course, in the Americas. The influence of this on the industrial capacity was indirect; but it was nonetheless great.

Between 1492 and 1600 the precious metal stocks of Europe increased about fourfold. They provided a badly needed medium of exchange and thereby greatly facilitated trade. Moreover, and this was no less important, they brought about an upward trend in the price level, which was a powerful stimulus to all branches of economic life. The gold and silver bullion which was accumulated in national treasuries greatly facilitated the financing of wars. Gold and silver ranked high in the list of strategic materials of this period.

Another major element that I will speak of briefly in the industrial potential for war of the seventeenth century was wood. Because of the cost and difficulty of working iron, most articles, utensils and equipment were made of wood. It was an age of wood rather than an age of iron. Wood in the form of charcoal was the principal metallurgical fuel. It was used, of course, for domestic heating purposes as well. Because of its use in shipbuilding, timber was a critical if not a strategic material for most countries, that is, timber along with naval stores.

The main sources of ship timber from the twelfth to the eighteenth centuries were from northwestern Europe, the Baltic region and England. With a diminishing supply, there was a steady search for new sources of supply in the New World. The rapid expansion of the merchant marines of European powers and of navies made forest industries as essential to that age as the steel industry is to ours. The book "Forests and Sea Power," by R. G. Albion, of Princeton University, illustrates this point with great force.

Transportation capacity was another key element in the industrial war potential in the seventeenth century. Some improvements of minor importance had been made in overland transportation; but the most spectacular developments, of course, were in the field of ocean shipping during the late centuries of the Middle Ages. There were important improvements in the art of navigation; there were new navigating instruments, and a greatly improved cartography.

There were great improvements in the ships themselves in the fifteenth and sixteenth centuries—in construction, in rigging, and in operation. There were larger, sturdier and more seaworthy vessels, which could go anywhere and stay at sea for long periods. Ships were no longer restricted to inland seas and to skirting along the seacoast. The art of sailing into the wind through tacking greatly improved the speed and reduced the cost of ocean transportation. The result of all this, of course, was greatly to facilitate trade and commerce. Heavier,

bulkier and cheaper goods were carried. Instead of operating largely on a luxury basis, as in the Middle Ages, commerce came to deal increasingly with the necessities of life for large numbers of people.

Let me sum up briefly the principal effects of these changes in industrial capacity upon the war potential of the leading powers of Europe.

The introduction of a money economy, together with improved transport facilities, enabled nations to mobilize larger resources for war, more quickly and more completely. By increasing the economic surpluses and by improving military equipment, these changes in industrial capacity made for bigger and technically better wars, increased the intensity and duration of warfare, and widened its territorial extent. In connection with the European colonial expansion, they provided more to fight for and more to fight with, the resources of the European powers having added to them the resources of the colonies. Navies, which had been of minor importance in medieval warfare, took their place beside armies as a major instrument of national power, indispensable for the maintenance of colonies and the protection of commerce. Finally, these increases in industrial capacity assisted the shift of the center of political and economic power, as I indicated earlier, from the states bordering the Mediterranean to the rising nations bordering the Atlantic seaboard.

For the next cross section of economic capacity in relation to war potential I am jumping down to the third quarter of the nineteenth century, to 1875. The outstanding economic fact during this intervening period of time, of course, was a related series of technological and industrial changes known collectively as the Industrial Revolution. It got under way first in England in the early part of the eighteenth century, and reached its climax in the third quarter of the nineteenth century. The term "revolution" here applies to the character of the changes, not to the speed of change.

In the aggregate the effects of the Industrial Revolution upon the industrial capacity were tremendous. They were felt not only in the manufacturing and extractive industries, but also in agriculture, transportation, commerce and business organization. The Industrial Revolution introduced machine processes, mechanical power, large-scale production, and the factory system. The early industrial age, too, was based preeminently on metals and minerals, as the previous one had been based upon wood. Above all, it was based upon coal and iron. Oil did not come into the picture, of course, until the third quarter of the nineteenth century.

In the iron industry we had a series of major technological innovations. These were the replacement of wood in the form of charcoal by mineral coal as fuel in smelting, refining and forging; the development of new refining techniques, starting with puddling

and running on down to the Bessemer process and the open-hearth process.

We had improvements of corresponding importance in the working and shaping of iron. The shaped roll replaced the forge hammer for many important purposes. New forging techniques were developed in connection with the steam hammer and the hydraulic press. There were important improvements in casting techniques as well. Of particular importance in this field were those improvements which resulted in the introduction in the period, say from about 1775 to 1850, of basic machine tools: the standard screw-cutting or engine lathe with slide rest; the boring mill; the planer; the drill press; the turret lathe, and so on.

Another important development, of course, which was made possible by the introduction of the Bessemer and open-hearth processes, was the shift from iron to low-carbon steel, with its superior tensile strength, hardness and durability. Similar developments took place in the non-ferrous metal industries during this period, but they proceeded more slowly than in the iron and steel industry.

Mechanization of production developed alongside these other technological changes. Fundamentally, this involved two different things: a machine to do what the human hand had done before, and the provision of mechanical power to drive the machine. The steam engine of course played the key role in this development although the direct use of water power long continued to play an important role. Steam power emancipated industry from site locations determined by the availability of water power.

The use of steam power and machines brought about the concentration of industrial production in large plants. This encouraged the subdivision of labor and improved plant management, resulting in greatly increased efficiency. Large-scale production opened up a wide range of possibilities for reducing costs by means of internal rearrangements and careful management. The end result was the factory system as we know it in the middle or latter part of the nineteenth century.

Of course, these changes in production were accompanied and made possible by a revolution in the field of transportation. If anything, the application of steam power to transportation—the steamboat, steamships and the railroads—was more important than the use of the steam engine in manufacturing. Only through cheap, speedy and well organized transportation service could the manufacturer reach the extensive markets essential to support large-scale production. Last, and for a time least, we had the electric telegraph coming in about the middle of the century which did much to accelerate business transactions.

If we are to understand the effect of these developments on economic war potential, a number of factors must be kept in mind.

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First, compared with the rate of technological advance in our own day, the Industrial Revolution proceeded as in slow motion. The rate of change, however, was gradually accelerated with the advance of the nineteenth century.

The spread of industrialism to other lands and nations was also a very slow process. Until the last quarter of the nineteenth century England was far ahead of all other countries with the exception possibly of the United States, which was moving very fast in that period. On the continent, Belgium, Germany and France followed along anywhere from one generation up to fifty years behind England. Industrialization proceeded especially slowly in central, eastern and southern Europe; likewise in the Near East and in the Far East. In this country an important beginning in industrialization had been made in the second quarter of the nineteenth century, but progress was not very rapid until the generation following the Civil War. By 1900 we had caught up with and in some respects passed Great Britain.

The effects of the Industrial Revolution on the conduct of War likewise were felt only very slowly. That was due, I think, more to political and social than to technical factors. One major reason probably was the fact that the middle class had become the dominant economic group with the advance of industrialization. This class rode into political power on the tails of the French and American Revolutions. The nineteenth century was, of course, the century of the middle class. In contrast with the landed aristocracy which this class displaced, the middle class had no taste for war. A few firms profited from war and added substantially to their capital, but in the main business men viewed war as something to be avoided. By and large they found the profits of peace greater than those of war.

Another important factor was that with her superior wealth, her advanced industrial development, and her great navy, to say nothing of her skilful balance of power strategy, Great Britain succeeded in imposing peace on the world during the nineteenth century. There was no world war from 1815 to 1914.

This long period of relative peace was due also, I think, to the lack of powerful incentives to war. The old colonial empires, over which the western European countries had struggled in the sixteenth, seventeenth and eighteenth centuries, were on the decline. There was a lack of interest in maintaining them. The struggle for markets, materials and investment outlets, which was the outgrowth of industrialization, had not yet become very active.

The first large-scale war to show the effects of industrialization was the American Civil War. And yet during that war there were on the whole no major innovations in weapons. There were minor innovations in the form of armor plate and the increased use of artillery. The most important effects of industrialization in the Civil War were felt

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in the field of transportation and supply, as a result of the widespread use of the railroad and of steamboats.

From 1875 to 1935, which is my next jump, was only sixty years, but in this period there were changes in war potential of the greatest importance. Both in kind and in magnitude the changes in these sixty years were greater than all those that had taken place in the previous five or six hundred years. The index of world industrial production from 1880 to 1937 rose from 18 to 119. Mineral production in the same period rose from 15 to 113. The production figures for the United States, which was advancing so rapidly in industrialization in this period, show a tremendous expansion. Between, roughly, the Civil War and the outbreak of World War I the population increased three times; but in the same period pig iron production increased 38 times, coal 39 times, total mineral fuels 44 times, sulphuric acid 43 times, and copper 76 times. Our growth, of course, was at a substantially greater rate than that of most countries.

It is hardly possible to do more than call attention to some of the outstanding developments which change significantly the industrial pattern of war potential in this period. The older trends of industrialization which are reflected in the figures I have just cited, continued although at a somewhat slower rate of increase in the more advanced countries. There is a continued extension of railroad networks and merchant marines. The railroad mileage of the world increased sixfold, 1870-1930. There is a continued expansion of the basic ferrous and nonferrous industries. Bituminous coal continued to occupy its dominant fuel role. Production, of course, was organized on a larger and larger scale; and the commercialization and mechanization of agriculture advanced steadily.

But the more striking developments in the period after 1875 are associated with what has been called the Second Industrial Revolution. This involved the rise of new sources of fuel and power, of new industries, of new materials, and of new techniques of production. A power revolution took place in the last quarter of the nineteenth century as the result of the introduction of three new prime movers: the steam turbine, the electric motor, and the internal combustion engine.

In the United States there was an increase in the power used in manufacturing, mining and transportation from about 2.5 million horsepower in 1849 to 174 million horsepower in 1923, not counting non-commercial automobiles, which had a total horsepower of over 500 million. The electric motor and the internal combustion engine, of course, brought a new flexibility and mobility in the application of power which had far-reaching industrial as well as military consequences.

The power revolution gave rise in itself to new industries—to the electrical industries and the automotive industries. These industries

in turn had a powerful stimulus upon the metal industries, and upon the development of the petroleum industry and the rubber industry.

Another outstanding industrial development, which was not entirely new, but which developed on a vastly larger scale, was in connection with the chemical industry. Prior to 1875 or 1880 the chemical industry operated on a not unimportant but relatively small scale. Then we have the great expansion of the older chemical industries, especially those producing the basic industrial chemicals—sulphuric acid, soda and soda ash. Then there was the gradual development of new synthetic chemical industries—coal tar dyes and their derivatives, nitrates and on down the line to the synthetic resins, plastics and rubber of recent years.

Then there were developed new materials. Light metals, like aluminum and magnesium, came to the fore. Later in this period came new alloy steels.

Paralleling the advance of the Second Industrial Revolution was the spread of industrialism from the countries of its origin in western Europe to other parts of the world. Here again we see the close interaction of economic and political developments. In the first place, England slowly lost her dominating position as machine and factory production spread elsewhere. By 1900 both Germany and the United States had become major rivals of England. By 1900 Japan was well advanced on her ambitious program of state-planned and directed industrialization. Many European governments also undertook programs of protecting and stimulating industry. Then, of course, following World War I came the Russian revolution, which laid the groundwork for rapid industrialization in Russia on a socialist basis.

The growth of industrialism was a principal factor in the revival of overseas imperialism in the last quarter of the nineteenth century by the European powers, which was joined in one degree or another by the United States and by Japan. This was provoked in part in the first instance by the desire of Germany and Italy, having achieved their national unity, to obtain a place in the sun. More important, of course, was the economic factor—the growing severity of competition among the leading powers as the result of the advance of industrialization. England no longer had the field to herself. There was competition not only for markets, but increasingly also for a widening range of raw materials and for outlets for investment capital, which was accumulating rapidly in the older industrial nations. The principal areas of this rivalry and a revived colonial expansion were Africa and the Far East.

This situation had an important influence on the spread of industrialization in the non-European world. The western powers found it to their advantage in general to keep the industrially backward areas in the world in an essentially colonial status; that is, to keep them as producers of industrial raw materials and consumers of finished goods,

and as markets also for such capital goods as were necessary for the development of the raw materials in these so-called backward areas.

The western powers accomplished this and both by political and by economic methods, for example, by the control of investment capital and by their unwillingness to encourage the development of manufacturing industries through the methods employed in their own countries. They opposed particularly the use of protective tariffs to assist industry in the backward areas. Of course, the superiority of their techniques and methods in the production of consumer and other finished goods enabled them to keep down such competition.

There were, of course, many natural obstacles to industrialization in the non-European parts of the world. There was frequent lack of raw materials in the amount or the quality or in the variety that were necessary to support a balanced industrial development. Especially lacking in many countries were adequate supplies of iron ore of the right kind and adequate supplies of coking coal. Few countries outside Europe and North America had the raw materials essential for a significant and balanced industrial growth. The primitive conditions of transportation in many backward countries, so-called, especially in countries like China and India, greatly retarded the advance of industrialization.

But there were also institutional and cultural barriers to industrialization. Industrialism is much more than a system of production. It is also a complex set of institutions, of attitudes, and of ideas and values. Many elements in the Hindu, in the Chinese, and in the Moslem cultures are incompatible with industrialism. The same thing is true in a less degree of the Latin culture of South America.

On the other hand, there were factors, political and social, in the backward areas which favored industrial growth. One of importance is the rise of nationalistic feeling as a result of contact with the powers of the Western World. Along with the rise of nationalistic feeling was a rising opposition to control by the western nations. Accordingly, colonial peoples have sought to escape from a status of dependency both politically and economically. They usually advocate industrialization as a basis for political as well as economic independence.

The over-all result has been that, despite certain favorable conditions, industrialization had spread comparatively slowly in the non-European parts of the world, as well as, until recent years, in such extensions of the European world as Australia, South Africa and Latin America. Industrialism in these "backward" areas is confined largely to mining and the preliminary processing of raw material and to the transportation of the products of these industries. As of 1936 all of Asia accounted for only 10 percent of the total world production of metals and only 12 percent of the total world production of nonmetallic minerals. Africa and Latin America together in 1936 produced only 15 percent and 10 percent respectively of the world output of these goods.

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Little headway has been made outside Europe and America in the machine and metal-working industries which are so basic in an industrial economy; and little in the consumer goods industries. The principal exceptions have been Japan and in a lesser degree Australia and India.

Now, what about the future? The specifications for this lecture call for some remarks on this score. Now, a historian is more of a mortician than a prophet in this field. Not being an economist or statistician I shall not attempt to compete with Mr. Masselman in projecting curves of industrial production into the future. The historian does have some advantages in considering this problem. He is trained to take the long view. The nature of his approach and viewpoint makes him peculiarly aware of the highly complex character of historic forces and of human culture. Increasingly in the future the makers of military policy and foreign policy will find it necessary to think in long-range terms and to reckon with the variety of complex conditions and forces in the world, both tangible and intangible.

With these preliminary remarks I will risk a few comments with respect to the future. In the first place, the indices of industrial production or economic potential cannot be safely projected very far into the future, for the reason that they are based on the assumption that the major factors involved remain constant, which, of course, they are not likely to do over extended periods. The Western World has been in a continual process of change and very rapid change during the last several centuries. So we cannot expect that the key factors involved—political, economic and cultural—will remain constant, except, of course, in the short run.

In the second place, industrialism, as we have known it during the past century, is based on a number of material elements each of which is subject to change over extended periods. It has been based on coal and oil as sources of energy. To what extent and for what purposes coal and oil may be displaced by atomic energy is largely a matter of speculation at the present time and probably will be for some years to come. Your guess is as good as mine and probably better.

Industrial production has been based also on iron and to a less degree on a group of nonferrous metals. To what extent will these be displaced or replaced by light metals, plastics and other substitutes? Dr. Leith gave us little encouragement that our mineral deficiencies can be remedied by such substitution but then events often repudiate the prophecies of the expert.

If important new sources of energy and important substitute materials are not developed, what will be the effect upon industrial development of the depletion of our present reserves of raw materials?

Industrialism has been based, too, on a complex of economic institutions known collectively as capitalism. Almost nowhere today does capitalism exist as it existed and operated during the nineteenth century. It has been replaced or greatly modified in a large part of

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the world. What effects will state planning and state ownership and state direction of industry have upon industrial growth? Here again is a factor that is highly speculative. We see the change taking place but who can anticipate the consequences?

During the period of industrialism's most pronounced development, that is, the 100 years prior to 1914, industrialization evolved in large part, if not wholly, in response to the conditions of peace. Now, if, as seems possible, war is tending to become the normal condition of society, what changes in the organization and conduct of industry will have to be made to adjust it to this situation? This is something for the ANMB to ponder over. The consequences for industrial capacity of a continued trend in this direction will be very great.

Industrialism, also, as I have indicated, has been part of a culture, of a civilization which during the past five hundred years has placed primary emphasis on the acquisition and enjoyment of material wealth. Ours is, in the opinion of many if not most, a materialistic civilization, though some will challenge this view on the ground of high spiritual values, and which are widely held. These goals of western civilization, of industrial civilization, and the values related to them are not actively shared by most of the non-European peoples in the world today. They are not shared by the rank and file--and indeed many of the leaders--of the Moslem, the Hindu and the Chinese peoples. For a generation at least these non-European peoples have been in more or less active revolt against European domination, against economic and cultural domination no less than political domination. Substantial progress has been made in various "pan" movements throughout the world--pan-Arab, pan-Africa, pan-Asia. The Europeanization of the world seems definitely to have passed its peak, although there are intangible considerations which prevent one from being too confident of any such generalization. But if this trend continues--this upsurge of the non-European peoples against European controls--what will be the effect on the western industrial economics, which for the last two generations have been so dependent on non-European markets?

These are some of the questions with respect to the future that cannot be answered. They can only be weighed and explored. Indices of economic potential and economic war potential are very useful. They are of basic importance for obtaining a picture of short-run trends and indications of possible long-range developments. But we must, of course, do more than look into the immediate future by such calculations; we must think also in terms of decades and generations, seen in relation to the dynamic forces that are operating throughout the world today.

I will now leave you with these questions, simply reminding you of the old proverb that "A fool can ask more questions than a wise man can answer."

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Historical analyses such as I have presented at some length do not lend themselves too well to discussion. A historian, of course, can retreat into the past and get on ground with which the layman is not too familiar. However, if you have any comments you want to make and points to raise of your own or any questions, I will be glad to be of service.

(No questions were asked.)

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