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The Geography of the Globe

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THE GEOGRAPHY OF THE GLOBE

An illustrated lecture delivered by
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at the Naval War College
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Geography is the study of the intimate interrelationship of mankind with his environment. So the Geography of The Globe is then the study of the relationship of all of the many peoples of the globe with the global environment in which they live.

This Globe, or World, or Earth, of which I speak, has been very aptly referred to as the stage upon which all living things act out the never-ending drama of their struggle to survive—the stage upon which we humans play our short parts, both as individuals and as peoples, in the long, long play called history.

Now the detail of this stage, this global environment of mankind, is composed of an intricate complexity of physical and living geographic patterns that spread across the surface of the earth. There are patterns of oceans and land masses, of mountains and deserts, of ice caps and jungles, of forests and grass lands, of lakes and rivers. There are patterns of countless varieties of vegetable life and endless species of animal life, and all of the innumerable patterns of the works and activities of humanity. And the sum total of all of these countless overlapping and intermingling patterns across the surface of our planetary island in space form this global environment in which we find ourselves.

And we humans are not merely on, or in, this complexity of environmental patterns. We are actually born of them, are an integral part of them, are inseparable from them.

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It is well understood that these patterns of global geography, through the centuries, undergo constant change and fluctuation. Most of these changes, with a few spectacular exceptions, are rather slow. In relation to the day-by-day and year-by-year affairs of mankind, such as you and I find ourselves personally involved in, many of these patterns may be considered to be relatively constant phenomena. In fact, it is useful to think of most of them as the relatively fixed facts of the geography of the globe. And these fixed facts of the geography of the globe may be considered as the basic bedrock foundation of all of the affairs and the activities of mankind.

Now I do not necessarily mean to imply that all of the events of history can be explained by geography, nor do I mean to say that an understanding of geography will give us an accurate insight into the future. But I do wish to emphasize that all of the affairs of mankind are firmly rooted to these basic fixed facts of geographical environment, and only by an understanding of these facts of geography can we hope to secure the beginnings of an understanding of the affairs of mankind.

So this morning I will ask you to take a general look at some of the more obvious and significant patterns of the geography of the globe, and from them derive some of their basic implications regarding the world in general, and our own special part of the world in particular.

And I know of no better starting point than an inspection of a scale model of the great globe itself.

Incidentally, a model of the globe, such as I hold here in my hand, is the only undistorted map of the world that we may observe. There simply is no way that any part of a spherical object can be flattened out onto a flat piece of paper without some dis-

tortion. And of course the greater the spherical section that is laid out, the greater the distortion.

The most commonly used flat map of large areas of the globe is the one we sailors are so fond of, the Mercator Projection. Over small areas, particularly in the middle latitudes, the Mercator map can be relatively free from distortion. And it is undoubtedly the most useful projection for purposes of navigating a ship at sea. But unfortunately this type of projection on a global scale suffers a double kind of distortion. It is a cylindrical projection in which the polar areas are distorted beyond all recognition by the expansion of the converging meridians into parallel positions. And then the normal physical relationship of the features of the earth's surface are further radically disrupted when the cylinder of projection is opened up and laid out flat. Unfortunately, continuous reference to a distorted picture can sometimes beget distorted ideas.

The currently popular plan-view types of projection, such as the conformal and azimuthal equidistant charts, also can be quite accurate over small areas. But they too have an expanding distortion that increases with the size of the section of the sphere that is included. As long as this plan view type of projection stays within a single hemisphere the distortion does not get too serious. But it does get completely out of hand when more than half of the globe is included. And, once again, a distorted map can foster distorted conceptions.

The point to bear in mind is that *all* large area flat maps have serious distortions for which allowances must be made. A spherical model such as this is the only undistorted map of the whole globe. It should be referred to more often than is the common practice.

Now shall we take a long-range look to our subject. And this is a long-range look since you gentlemen in the center of the audi-

ence are sitting at a scale altitude of about three hundred thousand miles, which is just about right for the perspective I would like you to retain this morning.

We see a general pattern of land masses and oceans. And over the whole of it, not so easy to see, is a tiny thin film of atmosphere. These oceans actually cover most of the surface of the globe —over three-quarters of it in fact. And the remaining surface is land—Less than one-quarter.

Because there is so much water over the surface of the globe, and because all of these oceans and seas are interconnected, geographers are fond of referring to the "Global Ocean". In this concept the great continental land masses become simply islands set in a global sea.

The greatest of the land masses is quite obviously the Eurasian-African combination of continents, and this is logically referred to as the "World Island". This part of the concept is particularly pleasing to European geographers, because the Americas are therein relegated to the status of mere outlying islands.

I think that it is interesting to note that practically all of the land areas of the earth's surface are grouped rather compactly on one side of the globe. For example, if we rotate the globe so that you are looking down on the western European Peninsula, you can see the half of the world that contains most of the land. Quite naturally this is often referred to as the LAND HEMISPHERE.

And the reverse side, as you see, is very wet indeed. This is, of course, the WATER HEMISPHERE.

Mankind lives here on the surface of the land, at the bottom of the atmosphere, and clear of the water. He needs all three to live—land, air, and water. But he lives on solid ground and likes to keep his feet quite dry.

ILLUSTRATION NO. 1

ILLUSTRATION NO. 2

Occasionally mankind sets out upon the surface of the water, and, in very recent times, up into the medium of the atmosphere. But the special vehicles for these unnatural adventures all must be carefully prepared upon the land. Their success in each case depends upon a safe return to the land. They are performed strictly for the facilitation of mankind's life on the land. Man is very much a land animal.

Our model globe is unfortunately too small for the examination of any further details of our global environment. So I will ask you now to turn to some larger flat maps of the surface of the earth.

Land and Water Hemispheres

On illustrations Nos. 1 and 2 we have a better look at the Land and Water Hemispheres. These particular flat maps, as with the remaining illustrations, are developed on the azimuthal equidistant projection. The globe is projected upon a plane surface tangent at one selected point and in such a manner that all of the elements of the map are at an accurate bearing and scale distance from the chosen point of tangency.

The center of all but the last two of the illustrations that I will use today is London, England. This center was chosen principally because London happens to be quite close to the center of the Land Hemisphere.

As is typical of this type of projection, it is quite accurate near the center, but gains an expanding distortion as the area projected is increased. Since I do not go beyond the hemisphere, the distortion does not get seriously out of hand. And the relationship of the land masses shown, both in area and in relative position, remains reasonably accurate.

Now if you will first turn your attention to this Land Hemisphere I will point out a few of its significant features.

Here we have about ninety-four percent of the land areas of the globe. Here we have a similar overwhelming percentage of the physical resources of the globe. Here we have almost all of the land areas that lie in the temperate climatic zones of the earth. Here we have about ninety-five percent of the peoples of the earth. Here we have all of the great political powers of the earth, and all of the potentially great powers.

Note that the land masses are quite compactly arranged in this hemisphere. See how that dynamo of modern political history, the European Peninsula area, is centrally located—the better to spread its influences. And see how central to the earth's principal land masses is the most important of the oceans, the North Atlantic.

Besides being called the Land Hemisphere, this half of the earth is also frequently and appropriately called the Principal Hemisphere.

Now if you will direct your attention to the Water Hemisphere we will briefly examine the diametrically opposite half of the globe. The reason for its name is obvious indeed.

As you see, land, the habitat of man, is quite scarce. Natural resources are scarce. So, of course, mankind is scarce. Communications are relatively stretched out and difficult. No major power exists in this half of the world, nor does one appear possible.

So in our examination of the principal geographic features of the globe, and with apologies to Australia, New Zealand, and possibly also to Admiral Byrd, I feel that we may dismiss this half of the world as being quite unimportant. And we will concentrate our attention from here on, on the Land or Principal Hemisphere.

We have examined the general pattern of land and water. Let's now go on to some more specific patterns.

The Physical World

First let us consider illustration No. 3. This is a diagrammatic map of the principal physical patterns of the Principal Hemisphere.

The darkest areas show the pattern of the great inhospitable and relatively impassable highland areas of the globe—the principal mountain barriers that lie across the land masses.

Notice how they form a sort of horseshoe-shaped mantle about the continents, so that the major areas of the continents, as they sit around the centrally located Atlantic Ocean, are additionally forced to face inward.

Notice the North Polar region of the earth with its great permanent floating ice pack, and see how the impassable frozen seas and the inhospitable frozen tundra areas of the Arctic have separated the New World from the Old.

Notice the great desert areas of the world, shown here in the dotted shading of the illustration. These zones are also quite useless either as living space or as communication areas.

And notice the impassable, unusable, jungle vegatation of the equatorial regions, that also form great barriers across the land masses.

And in, around, and between, are the oceans and seas, which for countless centuries were, in effect, great barriers before mankind learned how to use them as a means of travel and transportation.

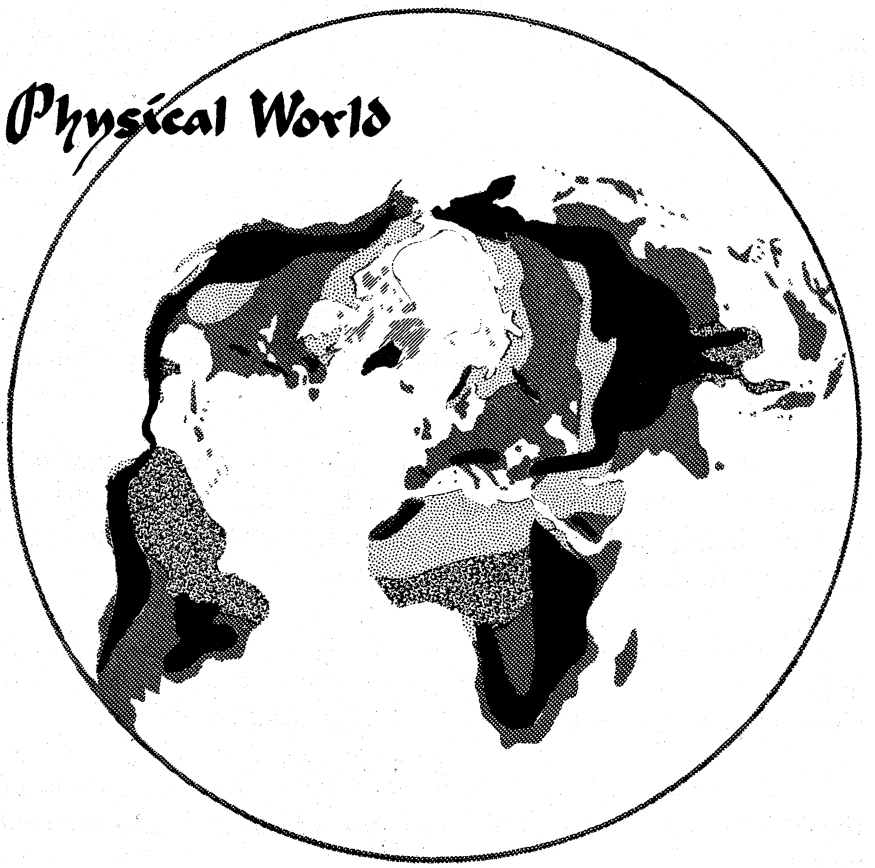

ILLUSTRATION NO. 3

And these remaining cross-hatched areas are what is left for mankind, the pattern of the hospitable and useful land areas, the desirable real estate of the globe.

In these preferred areas, generally speaking, we have temperate climate, adequate rainfall, flat lowland terrain. Here we have the useable vegetation and soil of the globe. And soil is, of course, the number one of all natural resources. It is over this principal resource of the earth that we humans have forever struggled so bitterly.

These major barrier regions of the globe have, through the centuries, tended to contain the peoples of the earth in separated compartments, in pockets of hospitable land.

Thus we have the principal races of mankind, the yellow and the brown, the black and white, each developing separately behind his natural barriers, each adapting independently to the details of the local environment.

Now let's take a different sort of look at these compartments of land favorable to human life, and see how mankind has actually made use of them.

The Human World

In illustration No. 4, the Human World, we see the general pattern on the earth's surface made by the distribution of the human animal. This shows the general density pattern of human population.

The darker areas show where humanity is really packed in tight, and the medium shades show the more moderately populated regions of the earth.

In round numbers, East Africa has about five hundred millions of population. India and Southeast Asia has another five hun-

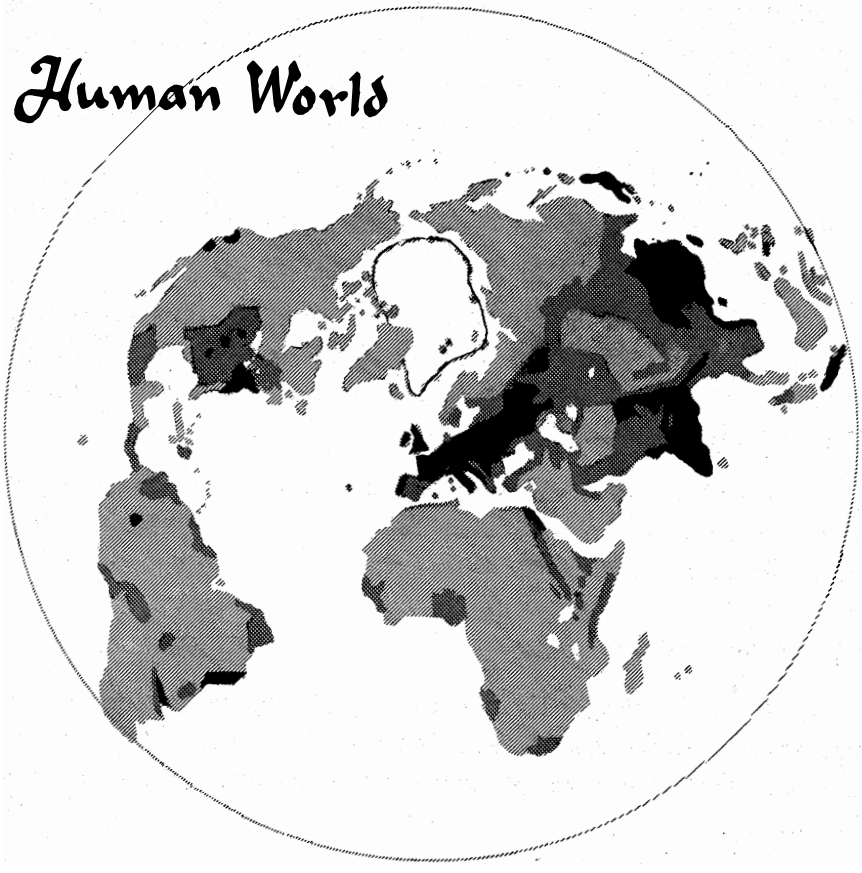

ILLUSTRATION NO. 4

dred millions. The European Peninsula has some four hundred millions. While our part of the world, North America, can scarcely muster two hundred millions.

Obviously, the New World is completely outclassed in manpower by the Old by about seven to one.

The total population of the entire globe is now estimated to be something over two thousand million human beings. Only one hundred years ago it was about half of this. Geographers have remarked that while it took one billion years for the earth to produce its first billion live humans, it has only taken one hundred years to double that figure.

So if population pressures are among the basic causes of war, it does indeed look like troubled times ahead.

But numbers of population do not of themselves constitute a measure of the threat to security of one people to another. As long as the major peoples of the earth remain firmly compartmented behind the natural barriers of the earth, mankind's competitive activities remain relatively local.

It is only when a people gains some means of mobility, becomes willing and able to move into another people's living space, does it become an actual or potential threat to the security of that other people.

And mobility, in large numbers and upon a globally significant scale, implies adequate means of travel and transportation, routes and vehicles, roads, and seaways, horses and camels, trains and motor roads, ships and aircraft. And of course the weapons of man, while not vehicles themselves, have throughout history been a most essential accessory of successful mobility.

These means of global travel and transportation, these global vehicles, together with implements of force, in turn are directly dependent upon the economic activity of a people or a state.

So, if we are to properly evaluate the meaning and implications of these population density patterns of the globe, we might next examine the basic pattern of the economic activity of mankind.

The Economic World

Illustration No. 5 gives us a diagrammatic chart of the global pattern of the basic economic activities of mankind, or the Economic World.

The dark areas are the areas of intensive economic activity, which, in this modern world of ours, is now largely a matter of industrial activity. The lightly shaded areas show the agricultural activities of mankind. And together we see a pattern of mankind's efforts to modify and improve his environment.

When we consider this Economic World, we find our living space over here in North America comparing much more favorably with the rest of the world.

Even so, there is every reason to believe that the manpower and resources of the European Peninsula of Eurasia could be combined and administered as a single economy and would then considerably outclass the economic potential of North America.

Now human economic activity is based fundamentally upon the dual foundation of first, manpower, and second, resources. When I say "manpower", I mean organized and effective manpower rather than mere numbers. Similarly, I refer to "resources" in the broadest possible sense, including energy sources and materials, organic

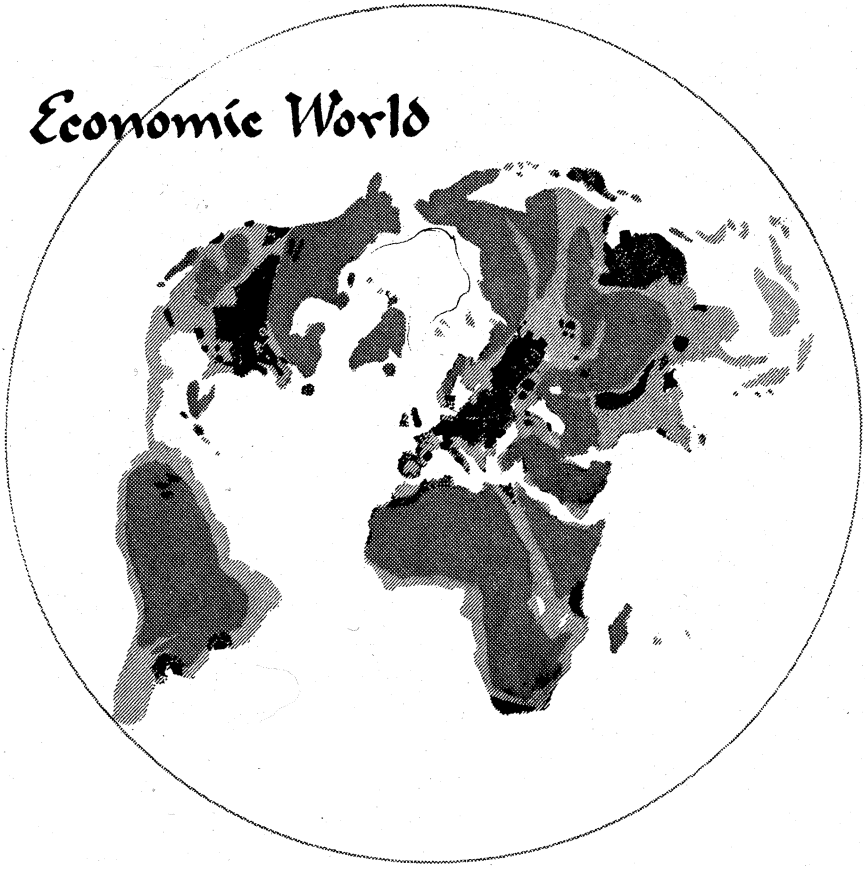

ILLUSTRATION NO. 5

resources and inorganic. To conduct his economic activity mankind takes the resources provided by the geography of the globe, and, by the application of manpower, he conducts his economic activity. This, in turn, enhances the value of the resources.

To perform his more intensive economic activities, such as we find in the industrial areas, mankind has to reach out and bring in to a convenient location his manpower, his food, his materials, and there perform his productive work. He then must reach out again to distribute the products of his economy to the sources of the essential materials. Thus the economic cycle is established.

As an intensive economic activity grows older and matures, it tends to exhaust the resources close at hand and is forced to reach farther and farther out in this procedure of exchanging products for resources.

Now all this reaching and moving brings us finally back to basic consideration in the inter-relationship between mankind and his environment, that I have already mentioned briefly. And that is mankind's basic necessity to move himself and his things about the surface of the earth. We might refer to this absolutely essential activity of mankind simply as Human Mobility.

So just as we have evaluated manpower by examining economic activity, so might we better understand the patterns of economic activity by looking at the global pattern of its circulation system, the veins and arteries of the Economic World.

Human Mobility

In illustration No. 6, we see the general world patterns of Human Mobility across the face of the earth—the pattern of mankind's global travel and transportation.

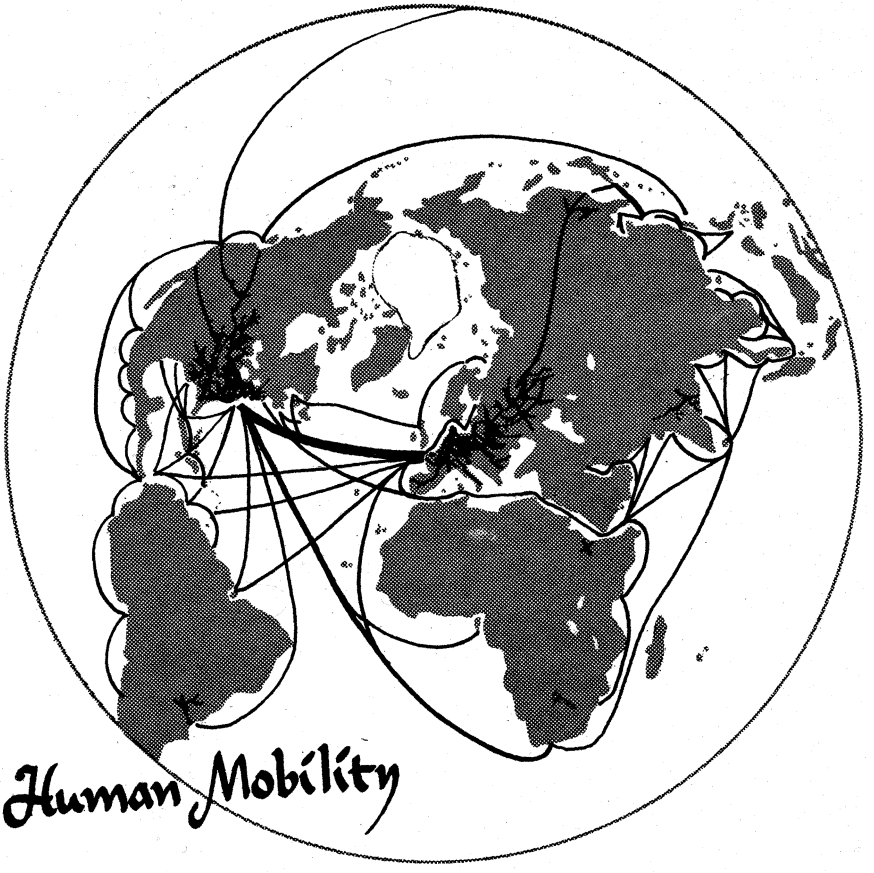

ILLUSTRATION NO. 6

The black lines across the land areas represent the principal land transportation of the globe. Railroads, motor roads, pipe lines, power transmission lines, canals, together form a pattern about as shown.

The lines across the oceans obviously represent the sea transportation system of the world.

These patterns of course are supplemented by mankind's more recently achieved mobility through the atmosphere, air transportation.

Air transportation moves mankind and his gear between these same places as does surface transportation, though to a surprisingly small extent. On a tonnage basis it is but a small fraction of one percent. Surface travel is, economically speaking, over 99% of the world transportation picture.

Notice that, generally speaking, the land transportation of the globe is "local" transportation, particularly when the artificial interruptions of political boundaries are considered. But because it is local and interior to the habitat of man, the importance of land transportation is basic indeed.

Notice that sea transportation is the "global" transportation of the world. It is the primary means of moving mankind's heavy weights freely and cheaply about the surface of the earth. These two systems, of course, meet end to end at the great seaport terminals, and each feeds into the other, each enhances the importance of the other. They are not competitive; they are complementary.

These sea lines of communication are long in miles, as you see. But in terms of economic cost, they can be very close links indeed.

A cargo ship is, in fact, a relatively cheaply constructed vehicle in cost per ton payload. It floats with no expenditure of energy. It takes very little energy to move it around the world. For example, it now costs about two dollars to move a 250- pound bale of crude rubber 9,000 miles by sea from Singapore to New York City It costs about two dollars to move this same bale of rubber about 500 miles by rail from New York to Akron, Ohio.

So you see rail transportation, in this particular instance, costs about eighteen times as much as sea transportation.

The same bale of rubber transported the whole distance by air would involve a charge of about six hundred dollars at current rates, or about three hundred times as expensive as by sea.

But now as we ponder over this basic importance of human mobility across the surface of the earth, we are getting rather deep into the implications of geography in the affairs of mankind, and very properly so, for such is the nature of the science of geography. In the past century or so, there have been many great minds that have been applied to these types of problems. To mention a few of the more outstanding names, there have been Kjellen of Sweden, Mackinder of Great Britain, Ratzel and Haushofer of Germany, and Mahan and Spykman of the United States. I feel that it would be proper at this time to briefly examine some of the ideas of a representative of these gentlemen. For this purpose, I have chosen Mahan, Mackinder, and Spykman.

Captain Alfred Thayer Mahan, U. S. Navy, was a member of the staff and finally President of the Naval War College between the years of 1885 and 1892. In 1890 he published his remarkable book, THE INFLUENCE OF SEAPOWER ON HISTORY, following it closely with a virtual flood of books and articles on related topics. Mahan's basic concepts might be summarized as follows:

Mahan interpreted modern history as being largely the story of a continuing struggle by the maritime peoples of the earth for the control and utilization of the maritime communications of the world. He likened the oceans and seas to a vast unbroken plain criss-crossed by heavily travelled highways, available at small economic cost to those who were able to utilize them.

Mahan pointed out that ships traversing these ocean highways were the cheapest, easiest, and frequently only means of transport between the maritime regions of the earth. Mahan felt that the economically more expensive land communications could never seriously compete with those of the sea.

Hence, Mahan presented, and profusely illustrated with historical examples, the thesis that the state that controlled and utilized the ocean highways of the globe gained a priceless economic and military advantage over its less wise or less fortunate competitors.

Mahan pointed out that the strength of any maritime power, as with all military powers, was entirely dependent upon the strength of the base of its operations. Mahan explained that a physically secure base, such as an insular base, that was relatively free from the economic burden of having to defend vulnerable land frontiers, and that was otherwise economically prosperous, could best afford to establish and maintain maritime strength upon the sea. And he further explained that if such a base for seapower happened to be so situated geographically that it could both provide for its own security and also dominate the sea communications of its rivals with a single strong seagoing military force, it was indeed in an historically advantageous position.

Mahan pointed to the several centuries of world domination by just such a maritime power, Great Britain, as the principal example of the application of these principles.

And finally Mahan, and this was some fifty years ago, predicted that because of America's possession of an economically strong and secure insular base of continental dimensions, she might well succeed Britain as the dominant maritime power of the globe and, as a consequence, become the dominant power of the globe.

Sir Halford J. Mackinder was a distinguished British geographer and a contemporary of Mahan. In 1904, he published a most outstanding paper concerning the influence of geography on human affairs, entitled, THE GEOGRAPHICAL PIVOT OF HISTORY. And in 1919, after the end of World War I, he enlarged upon his thesis in his book, DEMOCRATIC IDEALS AND REALITY. Mackinder's concepts might be summarized as follows:

Mackinder, somewhat similarly as Mahan, interpreted history as being primarily a record of a struggle for power between the maritime and the continental peoples of the earth, between peoples largely dependent upon sea communications and those largely dependent upon land communications.

Unlike Mahan, Mackinder saw no assurance that the contemporary domination of the maritime peoples would continue. On the contrary, he felt that modern improvements in overland communications, as provided by the railroad, the airplane, and other means, would inevitably tip the balance in favor of the continental peoples.

Mackinder's concepts had to do mainly with the greatest of the land mass areas, the Eurasian-African combination of continents, which he very aptly named the World Island. This concept is pictured in illustration No. 7. He considered this World Island to be composed of two very different regions. One region was interior to the Eurasian land mass, dependent upon overland

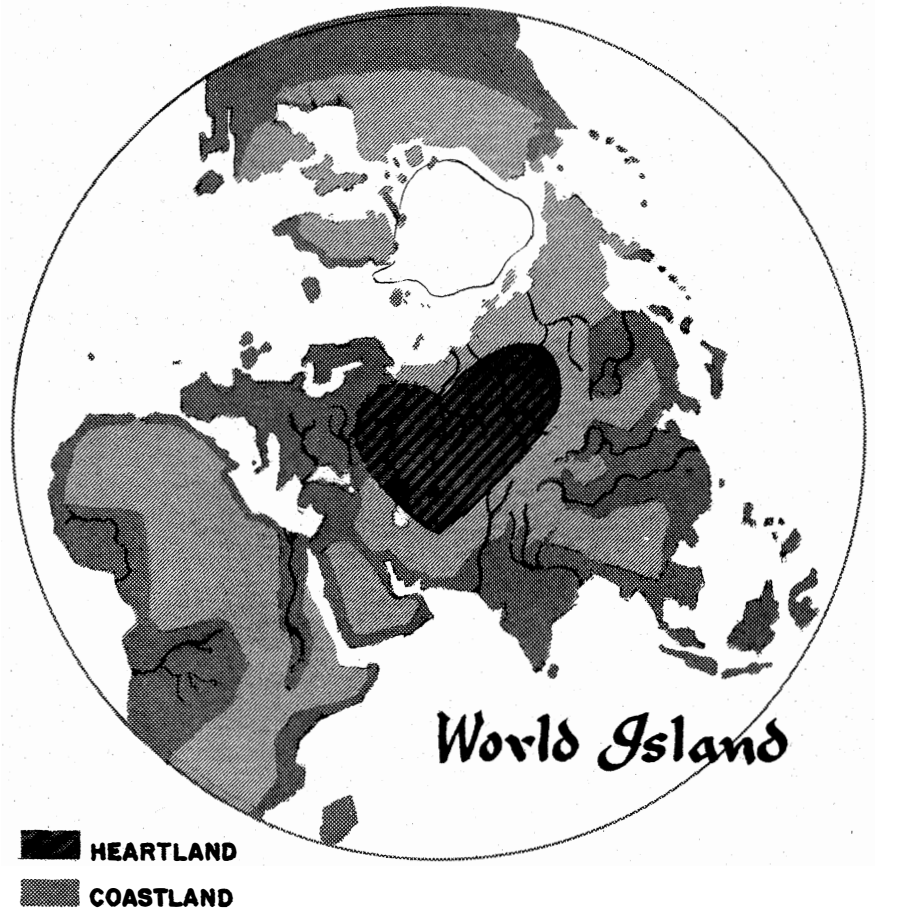

ILLUSTRATION NO. 7

communications, and relatively inaccessible to the influence or domination of seafaring peoples. This he named the *Heartland* of Eurasia. The second region was exterior, consisting of those outer areas of the World Island generally accessible to the sea and dependent upon sea communications for a large element of its economic strength. This maritime outer region he named the *Coastland* of the World Island.

Mackinder warned that if some central European power were ever able to unite the advantages of the Heartland inner fortress of Eurasia with the advantages of adequate access to the sea such as could best be provided by the European Peninsula, there might arise a combination of land and sea power that could easily dominate the world. In the Germanic peoples of central Europe, Mackinder feared that he saw the possible leadership for just such a super-power. This gave rise to his famous warning:

> "Who rules East Europe commands the Heartland;
> Who rules the Heartland commands the World Island;
> Who rules the World Island commands the World."

Some fifty years have passed since these famous concepts of Mahan and Mackinder were first presented to the world. During this half century, we have witnessed two great tests of their theses, World Wars I and II. And undoubtedly in the present cold war we are witnessing a third great test of strength between the continental and the maritime peoples of the earth.

Professor Nicholas J. Spykman, I believe, has provided us with the best modern critique of the Mahan and Mackinder concepts and has come to some reasonable and modern conclusions of his own. In 1942, Spykman published his book AMERICA'S STRATEGY IN WORLD POLITICS, and, in 1943, his staff at Yale University published posthumously, his final book THE GEO-

GRAPHY OF THE PEACE. In these writings, Spykman reviewed the ideas of Mahan and Mackinder, and with access to modern geographic knowledge and in the light of recent history, came to the following general conclusions:

Mahan's seapower concepts were quite valid for the particular historical period and framework of circumstance of his writings. Mahan clearly understood the dominating influence of the sea upon the periods of history that he examined. Mahan foresaw with remarkable clarity the future power position of the United States. But Mahan apparently did not appreciate the modifying effects of the improvements in the world's overland communications upon the relative importance of the sea.

Spykman notes that Mackinder, however, accurately foresaw the impending challenge of improved land communications. But Mackinder, in his preoccupation with the World Island idea, overlooked the impending power potential of the New World, with its later decisive weight on the side of the maritime world. Further, modern geographic knowledge now indicates that Mackinder's Heartland does not contain all of the power potential that Mackinder ascribed to it, and that rule of the Heartland therefore does not of itself lead to command of the World Island.

Spykman concludes that it is not the Heartland of Eurasia that contains the bulk of the power potential of the world, but rather it is what he prefers to term the *Rimland* of Eurasia. The Rimland is in effect a deepened coastland or maritime world made valid by the improved land communications between the sea and adjacent land areas. It is this Rimland of Eurasia that contains most of the world's human and material resources, whose value and effectiveness have been enhanced by the effective combination of land and sea communications. Hence the power or combination of powers that gains effective control of the bulk of this Rimland

of Euraisia will control the greatest possible base for world commercial and military power, and thereby dominate the world.

Spykman wisely did not venture to predict whether such Rimland control might be pursued from within or without, or by what political means.

So much for a very brief survey of some of the stimulating geopolitical ideas of Mahan, Mackinder, and Spykman. I think we should now, in conclusion, make a brief examination of the geographic position of our own particular living space over here in North America, our own Special Island in the Global Sea, and from this basic geographical situation, derive some of the implications regarding America's future strategy of survival in this highly competitive world.

America's World

Illustration No. 8 is a diagrammatic projection of the half of the world that is centered on the middle of the United States.

As you see, the United States is the most truly insular of all of the great powers. We are an island power of continental dimensions. We have direct and convenient access to both of the great oceans and therefor to all of the ocean highways of the world. We have no unfriendly, threatening land frontiers to defend. To the north we have the great space and surface barrier zone of the ice and tundra regions of the Arctic. On either side we have the great space barriers of the Atlantic and the Pacific—barriers to our enemies so long as we are able to command these ocean and air spaces.

Under the present circumstances we are still the most geographically secure of the great powers of the earth. This exceptionally favorable situation even drew admiration from the German geo-

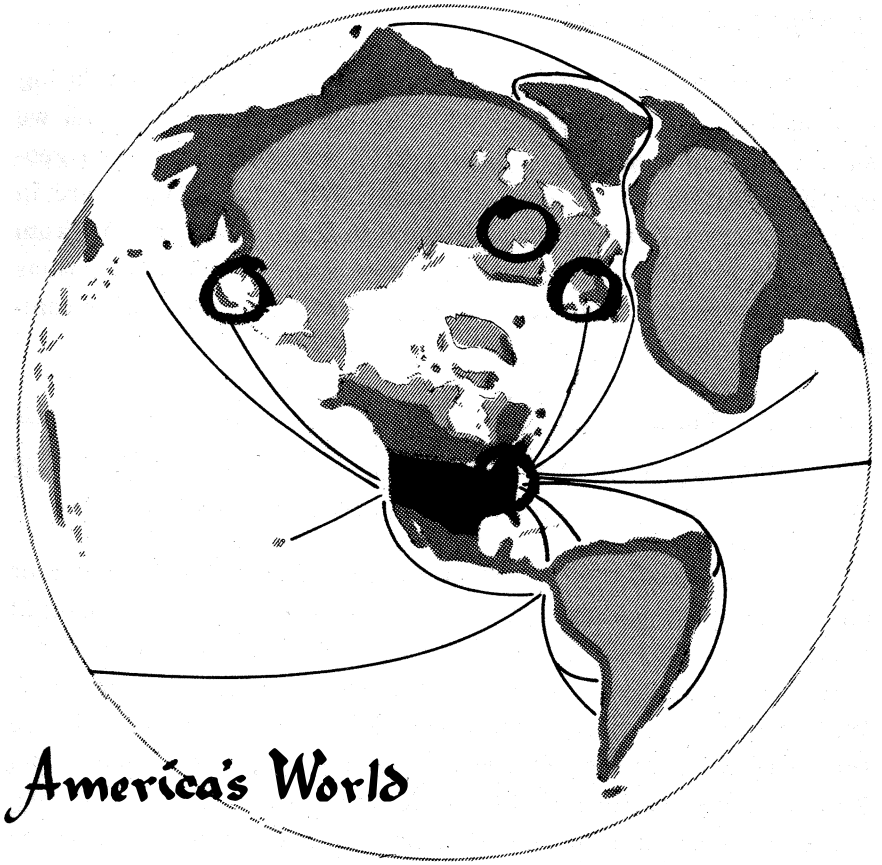

ILLUSTRATION NO. 8

politician Haushofer, who once remarked that the United States was the only geo-politically mature power on the face of the globe.

But in spite of our comparative security, we can see by a glance at the patterns of the geography of the globe that a unified and efficiently administered Eurasian continent would easily outclass us in every respect. A military power based upon an integrated Eurasian continent would enjoy the largest and strongest of all possible bases of national power. Our protecting barriers of space and ice and ocean might then become convenient avenues of attack. Our own little island would then in effect be surrounded, and the essential overseas roots of our economy exposed to fatal destruction.

So our own geographic circumstances seem to have the following three basic implications.

First, since we are but a small part of the total world's power potential, we could not possibly stand up against a world united against us. We need friends and allies. We need them both for the strength that they bring and for the consequent denial of that strength to a rival power combination. Our natural and normal friends and allies are still our colleagues of the Maritime World, near and accessible over the convenient and economically inexpensive ocean highways of the globe.

Second, in order to maintain our own strength in this highly competitive world, both for our own protection and for the assistance of our allies, we must forever provide for the military security of both the living space of our base and for its essential lifelines of support across the seas.

Third, and finally, we must forever maintain the material means and the moral intention of projecting our military strength around the surface of the globe, both in support of our essential

allies, and against such threats to our security and survival as may develop on the surface of our earth.

We have taken a brief and long-range look at some of the more prominent patterns and circumstances of the global environment in which we find ourselves and have examined a few of their more obvious implications in the affairs of mankind. During your course here at the Naval War College, your studies will be directed to certain specific, strategically important areas of the globe. I hope that you will be quick to recognize that geography sets the stage in the smaller areas as well as the large.

For the aims and policies of all of the peoples and nations of the earth, the strategies and tactics of all of their economic and military enterprises are firmly geared to these basic and fundamental facts of the Geography of the Globe.