

## Global Relations of the United States

by S. Whittemore Boggs

Even the colonial beginnings of the United States may be regarded as dimly prophetic of the worldwide relationships of the present time. Edmund Burke, in his famous speech on conciliation with the Colonies, paid eloquent tribute to the hardihood and skill of the colonial American whalers; and the whale fisheries of the world became predominantly American for decades, well into the 19th century. The American Declaration of Independence expressed "a decent respect to the opinions of mankind." The American flag first appeared at Canton, China, in 1784, and Antarctic sealskins came to be important in the "China trade" a little later.

But beginning with the turn of the 20th century, there came a great change in the external relations of the United States. They have attained truly global proportions—in economics, international politics, and cultural relations. No head-in-the-sand psychosis, no delirium of chauvinism, can eradicate the fact that the United States has unwittingly and ineradicably achieved global relations. Today there is not a cranny of the globe that is not good for a headline even in a smalltown newspaper in the United States, if there is a news item sufficiently lurid or frightening or appealing to our sympathies. While some persons, if it were possible, would probably roll up the oceans, build a high wall around our borders, or secede from the earth, even such extremists would not deny themselves the use of an automobile or a radio simply because it incorporates many materials which can be obtained most economically only from other continents or distant islands—tin for solder, aluminum, manganese, rubber, vanadium, and scores of other items. A brief article, even if devoted solely to the worldwide economic relations of the United States, could scarcely do full justice to that single phase of our global relations.

All of the earth's nearly 2,500 million human inhabitants now live in a world of continually expanding relationships. Our fascinating little

earth seems to be a "rapidly shrinking world" only because of the ever geographically widening outreach of communications, transport, and travel available to individual human beings and societies—which is the truly significant factor. These new powers do not solve world problems; they ameliorate a few, create new ones, and aggravate others. We recall the story of "Benny and the Bird-dogs" by Marjorie Kinnan Rawlings: "Now putting an automobile under Uncle Benny was like putting wings on a wild-cat—it just opened up new territory."

### Roadblock To Understanding Global Relations

A serious roadblock to understanding the new global relations of the United States is misconception of simple geographical relationships. This is in large part due to widespread use of Mercator and some of the other world maps in school textbooks, newspapers, and now even on television. It is disconcerting to discover how many people are quite oblivious to the characteristics of the maps they use. And among those whose job it is to prepare maps—seldom geographers or cartographers—few have an adequate knowledge of map projections and of the properties of the maps they make with which to convey basic information. The Mercator is used more frequently than all other projections put together, and almost never does one see an equal-area projection. The fact that the world is round is taught, I suppose, in all American schools. And most people have been told that a great circle is the shortest route between two points on earth.

The fact that, between any two given points on the earth, the "great circle route" is shorter than any "small circle route" is illustrated by the following problem: A man has a gun that will shoot only 30 rods; he sees, shoots, and kills a bear that is 40 rods due east of him. How do you account for it? And what is the color of the bear?

The answer, of course, is that the man and the white polar bear are standing on meridians which are  $180^\circ$  apart, so that they are diametrically opposite across the North Pole, and that both are 12.73 rods from the pole. The "small circle" parallel of latitude on which both man and bear are located therefore has a circumference of 80 rods; and the bear is both 40 rods due east and 40 rods due west of the man (figure 1).

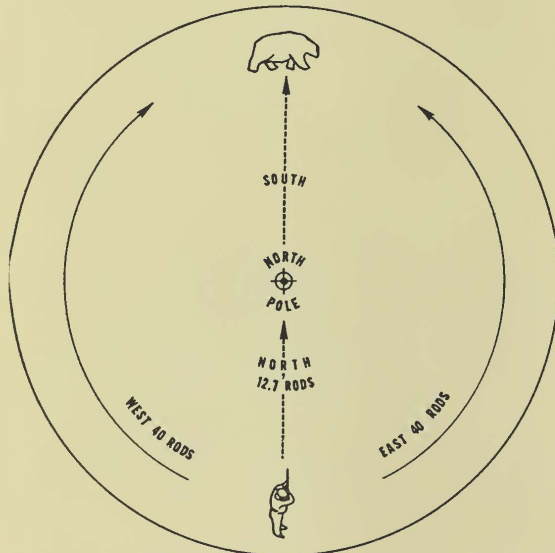


Figure 1. Man shooting polar bear 40 rods due east of him

The diameter, 25.46 rods, which is a meridian and therefore a great circle, is less than the 40-rod semicircumference of a "small circle," which is, of course, a parallel of latitude. The bear is thus both 40 rods due east and 40 rods due west of the man, but only 25.46 rods north and south from the man—across the North Pole.

Very few people know what a series of great circle routes looks like on a Mercator or any other map (figure 2). Certainly from the maps they use (always flat) they don't almost instinctively visualize world relationships as they exist on the round world we live on.

It would be surprising if a few of the facts which are presented below do not surprise even some professional geographers. Misconceptions of the shape and size of the territory of the Soviet Union, for example, are among the most widely entertained. How many realize that the distance east-west across Africa, from Dakar to Cape Guardafui, is almost the same as the distance from Odessa, on the Black Sea, near the southwestern corner of the U.S.S.R., to Bering Strait and that the great circle between those two Russian points passes between Moscow and Leningrad and between Murmansk and Arkhangelsk and within five degrees of the North Pole?

People in the United States think of Buenos Aires and Montevideo as being in "this hemi-

sphere" and therefore relatively near, but seldom realize that those two South American cities are as far from Washington, D. C., as are Istanbul, Turkey; Igarka, U.S.S.R., in Siberia (on the Yenesei River); and the westernmost of the Aleutian Islands. Santiago, Chile, is farther from Washington than is Moscow. Mexico City is nearer Washington by nearly 500 statute miles than is Los Angeles, Calif.

A good corrective of American geographical ideas is "World View and Strategy" by Richard E. Harrison and Hans W. Weigert in *Compass of the World*. Professor Halford J. Mackinder, busy "setting up the teaching of political and historical geography at the universities of Oxford and London," and "noting current events with a teacher's eye for generalization," presented his paper that later became famous, "The Geographical Pivot of History," in January 1904. His most important map, called "The Natural Seats of

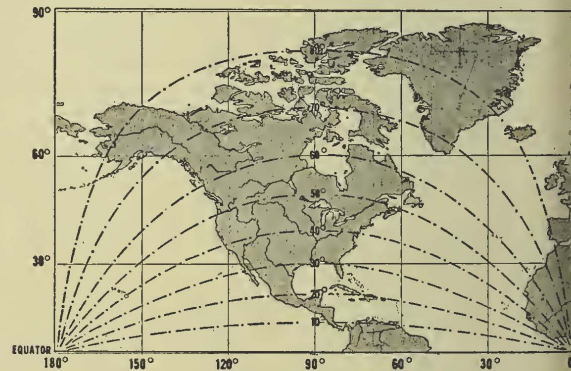


Figure 2. A family of great circles on a Mercator-type map

This is part of a series of great circle routes plotted on a Miller cylindrical projection—which is a mathematical modification of a Mercator projection, placing the parallels of latitude closer together, and bringing the geographical poles within a finite distance of the equator. Only the northern half of the so-called Western Hemisphere is shown above. If continued around the world each of these great circles would constitute a mirror image in the southern half of the Eastern Hemisphere, likewise terminating at  $0^\circ$  latitude,  $180^\circ$  longitude.

When an extensive series of such great circle courses is printed on transparent plastic it may be moved to the right or left on the map (keeping the equators of map and diagram always together), so as to bring any two points on the earth's surface onto one of these curves—or on a curve readily interpolated between two that are printed. The great circle course and approximate distance between any two points may thus be readily determined.

A map of the world, equatorial scale 1:30,000,000, approximately 57 x 35 inches, with relief in color, and with a series of 80 complete great circle courses similar to those illustrated above printed on the back, was prepared for the Department of State by the American Geographical Society. Copies may be purchased from that Society, Broadway at 156th Street, New York 32, N. Y., for \$1 folded, or \$2.50 in a mailing tube; but the order should specify that a copy of the map with a "great circle nomograph" on the back is desired.

Power," was on the Mercator projection, but without parallels and meridians, and limited by an ellipse. Weigert, analyzing Mackinder's reappraisal in his paper on "The Round World and the Winning of the Peace,"<sup>1</sup> remarks "... from Mercator he turns to the globe," but he also pointed out that "The great circle which Mackinder describes does not in fact cut the coast of France but passes to the north of Greenland. Thus he showed himself to be an unwitting prisoner of Mercator."<sup>2</sup>

One of the best correctives of geographical misconceptions, in my opinion, is the article entitled "The Myth of the Continents" by Eugene Staley, an economist, in *Foreign Affairs* in 1941. He points out that so-called "continental solidarity" is largely a figure of speech and that the oceans tend to unify more than the continents.<sup>3</sup>

We need to realize that most world maps constitute merely a conventional device for portraying geographical distributions as they are found at different latitudes and longitudes. There is no magic means of transferring to a globe the concepts conveyed by maps. The most effective means I know of for visualizing the peculiar properties of various map projections is to substitute a human head for the geographical globe as seen in the photographs in figure 3. The eyes are on the equator; the center of the nose is on the Greenwich meridian; the circular cap is much easier to copy than hair. This human head has been transferred to a number of the most widely used map projections, as if the eyes, nose, mouth, ears, chin, and cap were land masses. Here are shown (figure 4) the results of mapping the world on familiar projections. Such "maps" are, in a sense, caricatures of the human head represented and could scarcely serve to identify the contestants in a beauty contest or to record the faces in a rogues' gallery.

Maps centered at the North Pole are sometimes presented as if they were a new idea that readily corrects the misconceptions derived from Mercator and other maps. Actually such maps have been made for several centuries. To visualize some polar geography, we have here a map of that part of the northern hemisphere north of 30° north latitude, drawn on a gnomonic or great circle projection, centered at the North Pole (figure 5). Every straight line on any gnomonic projection describes a great circle course. Consider the advantages of commercial aviation at Thule, Greenland, if and when it becomes possible. Nothing would better illustrate the new relations of the United States. I spent the last 4 days of April 1953 at the great Thule Air Force

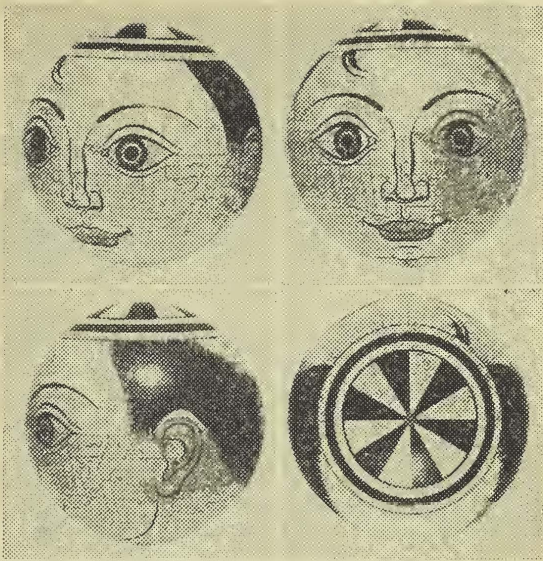


Figure 3. Human head on a geographical globe

*This head of a man was drawn upon a geographical globe by the artist, Boris Artzybasheff. The nose is centered on the Greenwich meridian, and the eyes are on the equator. This was made to facilitate graphic studies of the properties of world maps on various map projections.*

Base, near 76°30' north latitude, 69° west longitude. Located within 810 nautical miles of the North Pole, about 2,250 nautical miles from Washington, and 2,400 nautical miles from Moscow, Thule is open to supply by steamships for about 70 days each summer—when all possible supplies for the year are transported and stored. Since it lies 10° north of the Arctic Circle and therefore much farther north than North Cape, Norway, or Point Barrow, Alaska, commercial air passengers could stop off at Thule between flights and enjoy the "midnight sun"—continuously above the horizon during about 4 months (April 23 to August 21); for only about 98 days (November 4 to February 11) is the sun continuously below the horizon. Air routes between many northern hemisphere cities will eventually be established that will traverse at least short stretches of the Arctic Sea. Thule will be found near the great circle routes connecting northern and eastern Europe with central and western North America—which should carry heavy air traffic.

#### United States Hemispheres

But the world is round any way you look at it. Viewed from a spaceship, say from 10 million miles away in any direction whatever, practically a full hemisphere would be seen, bounded by a circle. The number of hemispheres is therefore

<sup>1</sup> Published in *Foreign Affairs*, July 1943, p. 595; and, in a slightly different form, in *Compass of the World*, 1944, p. 161.

<sup>2</sup> *New Compass of the World*, pp. 87, 88.

<sup>3</sup> *Compass of the World*, pp. 89-108.

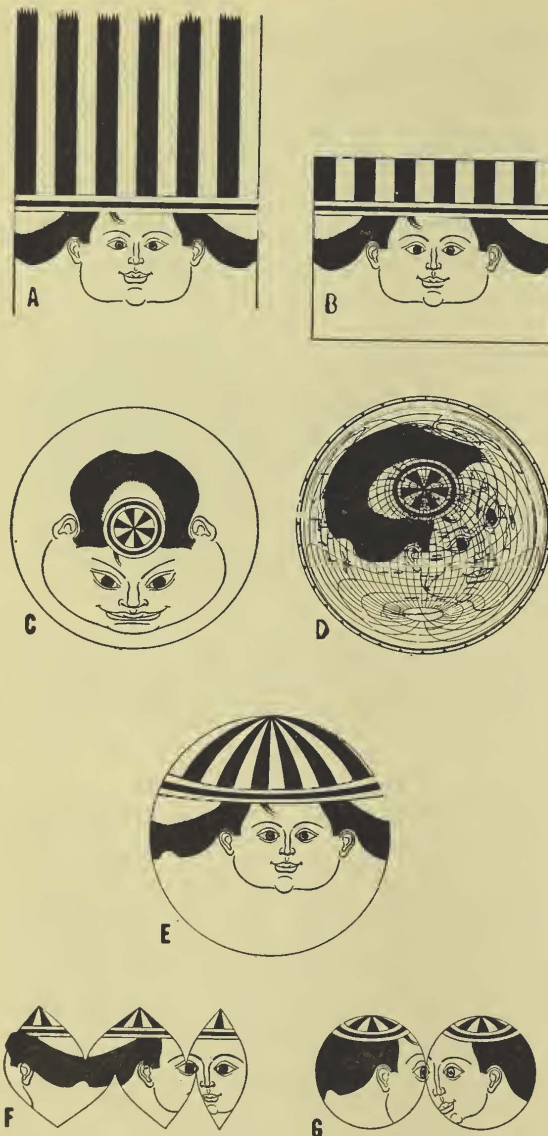


Figure 4. Human head on seven well-known map projections

The man's head shown in figure 3 is here presented on the following well-known map projections, as if the nose, eyes, mouth, ears, chin, and cap were land masses: (a) Mercator projection (because the North and South Poles are at infinity they cannot be shown on such a map); (b) Miller cylindrical projection, a mathematical modification of the Mercator, with all parallels of latitude closer together than on Mercator, and with both geographical poles represented by straight lines as long as the equator; (c) polar equidistant, the center of construction being at the North Pole in this instance; (d) azimuthal equidistant, the center of the projection being at Washington, D. C.; (e) Van der Grinten projection; (f) sinusoidal equal-area projection, as sometimes interrupted to avoid breaking the continents; and (g) two azimuthal equal-area projection hemispheres.

infinite. For Americans it is particularly illuminating to consider a few of the hemispheres which include all of the United States. I undertook something of this sort in 1945 in a paper entitled "This Hemisphere".<sup>4</sup> The map illustrations used with the present article are, with two exceptions, different.

As a background for consideration of most of the maps appearing with this article, consider the seven major "culture worlds" that have been so well defined by Russell and Kniffen, here outlined on a map of world population distribution on an equal-area projection (figure 6). Within the last year all of these seven "culture worlds" except the Polar world have been the scenes of special missions of Secretary Dulles, Vice President Nixon, or Milton Eisenhower. In five of these culture regions international conferences have been attended by official delegates of the United States within the last year. Dr. F. S. C. Northrup, in his recent book, *The Taming of the Nations: A Study of the Cultural Bases of International Policy*, develops the significance of these culture regions in the constructive evolution of international relations.

#### So-Called Western Hemisphere

Americans sometimes speak as if *the one hemisphere* in which the United States is located is the so-called Western Hemisphere.

The line separating the mapmaker's conventional Western and Eastern Hemispheres is the pair of meridians 20° west and 160° east of Greenwich. This line is wholly lacking in geographical significance (figure 7).

It seems appropriate here to speak of the unplanned development of our regional terminology. For several years I have been suggesting the de-Europeanization of our terminology relating to major geographical regions and its universalization instead. It is time to be done with "western" and "eastern hemispheres" and the rest and to begin employing terms that are objective and fully acceptable to the people living in the areas concerned. Perhaps "the American hemisphere" should be acceptable for the American continents and islands, including Greenland, although the Americas support only about 13 percent of the world's population on 30 percent of its land area. "Middle West" relating to the middle western United States is, of course, not objectionable, but I can think of no orientation of the globe that justifies the terms "Middle East" and "Far East." "Eastern Asia," "Southern" or "South Asia," "south central Pacific," and similar terms are, in my opinion, preferable from every standpoint. Incidentally, the adjective and noun "Asiatic"

<sup>4</sup> BULLETIN of May 6, 1945, p. 845; reprinted in *Journal of Geography*, Dec. 1945, p. 347, and in *Foundations of National Power*, edited by Harold and Margaret Sprout, p. 607.

ould be replaced by "Asian," which is analogous to American, African, European, Eurasian, and Australian.

### Panamá-Tokyo Hemisphere

The hemisphere shown at the left in figure 8 is centered midway between the city of Panamá and Tokyo (two Pacific ports) on the connecting great circle route of 7,320 geographical or nautical miles. Traveling by air from Panamá, one crosses the Caribbean Sea, Yucatán, the Gulf of Mexico, the United States (passing near Galveston and Salt Lake City), covering 43 percent of the total distance before reaching the Pacific Ocean near the mouth of the Columbia River; then across the North Pacific and over the Aleutians, crossing the northern part of the Bering Sea and passing within 400 miles of Kamchatka before reaching Tokyo. The white ocean area on the Miller cylindrical map at the right is the same hemisphere with the same Panamá-Tokyo great circle route appearing as a curve. Of the seven Russell-Kniffen "culture worlds," this hemisphere embraces much of the American and the Oriental, all of the Polar culture world, and some of the European.



Figure 5. Part of the Northern Hemisphere

That part of the Northern Hemisphere which is north of 30° north latitude (approximately the latitude of New Orleans, La., of Cairo, Egypt, and of Lhasa, Tibet) is mapped on a gnomonic or great circle projection, centered at the North Pole. On this projection, all great circle routes are straight lines, and all straight lines trace great circle routes between all points on those lines. The linear scale increases rapidly outward from the center of the projection.

Note how many straight lines connecting points named on the map cross the Arctic Ocean. Also note the advantages of Thule, in Northwestern Greenland, in relation to many of these cities.

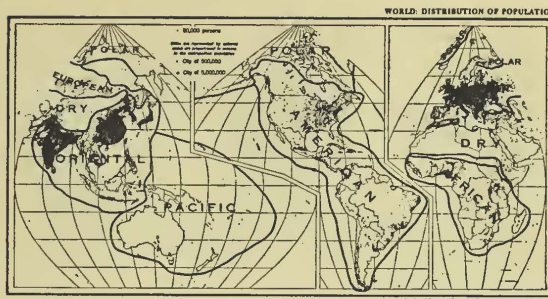


Figure 6. The seven major "culture worlds" of Russell and Kniffen, superposed on a world population map on an equal-area projection, each small dot representing 50,000 people

These "culture worlds" are: (1) Polar world; (2) European world not part of Asia; (3) Dry world, both hot and cold deserts; (4) African world south of the Sahara; (5) Oriental world; (6) American world; and (7) Pacific world. The "transition zones" are not represented in detail on this map. In describing nearly all the maps that follow, the inclusion or the exclusion of these "culture worlds" is mentioned.

### Moscow-Centered Hemisphere

It may seem odd to include the hemisphere centered at Moscow (figure 9) among the hemispheres including all the United States. But it does barely include San Diego, Calif. And it includes, as may be noted on this pair of maps, all of Africa and Asia, a northeastern fringe of South America, and much of Indonesia. It therefore embraces the larger part of the world's population and all or much of the larger part of all the seven "culture worlds" except Latin America and the Pacific.

### A North Atlantic Hemisphere

This hemisphere (figure 10) barely includes all of North and South America on its western edge—Cape Horn and the easternmost Aleutian Islands. Its center proved to be in the north Atlantic, at 28° N. and 31° W., and a great circle through that point somewhat east of South America passes between Greenland and Iceland. The western half of this hemisphere (a mere quarter sphere) thus embraces all of the land in the so-called Western Hemisphere, while the eastern half includes all of Europe and Africa (with most of Madagascar) and more than 40 percent of the area of Asia. Of the seven "culture worlds," only the larger part of the "Oriental" and all of the "Pacific" are lacking. Somewhat more about this interesting hemisphere was presented in my earlier paper referred to.

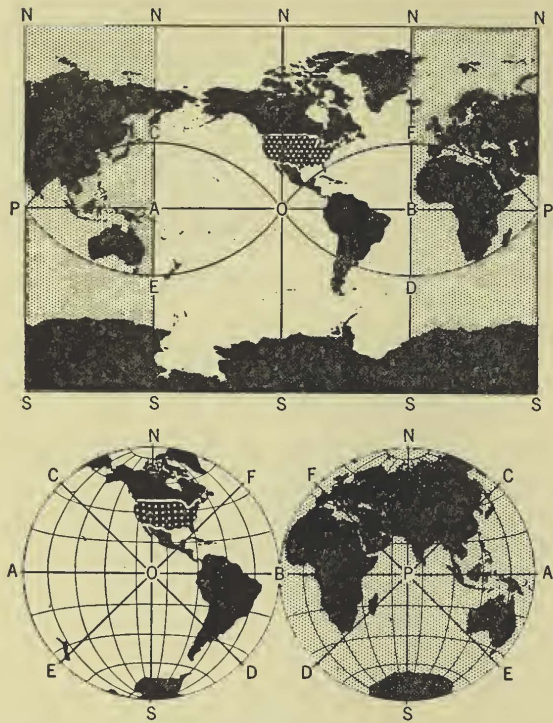


Figure 7. The map-maker's conventional Western and Eastern Hemispheres

The usual line of separation is the pair of meridians  $20^{\circ}$  west and  $160^{\circ}$  east of Greenwich. The white-ocean hemisphere at the bottom on the left, and in the center of the world map on the Miller cylindrical projection map at the top, is the conventional Western Hemisphere, and the other is the equally conventional Eastern Hemisphere. The map at the top shows that this Western Hemisphere is exactly as much east as it is west of the Eastern Hemisphere. The letters N and S are at the north and south geographical poles. The letters A to F inclusive are at identical points on all three maps, and the curved lines on the Miller map are identical with the corresponding straight lines (great circles) on the two circular hemisphere maps. O is the center of the Western Hemisphere and P is the center of the Eastern Hemisphere.

#### Sum Total of All U.S. Hemispheres

If a transparent plastic hemisphere be so placed on a globe that it just covers the United States and touches at the northernmost points of Washington and Maine, it will cover the hemisphere shown at the left in figure 11, which includes Antarctica and southeastern Australia, as well as South America and major parts of the Atlantic, Pacific, and Indian Oceans.

A series of four or more similar hemispheres may be mapped, tangent successively at the outermost points of Maine and Florida, Florida and Texas, Texas and California, and finally the Pa-

cific coast of the United States. The results are represented on the world map on the Briesemeister elliptical equal-area projection (figure 12). Four of the tangent great circles that limit the hemispheres embracing all of the United States are shown, each in a distinctive line symbol completely encircling the earth. These include the tangent lines AB, BC, DE, and EA (omitting CD). These great circles, tangent to the inverted outline mirror image of the United States in the Indian Ocean, outline the only part of the earth no part of which can be included in a hemisphere which embraces the whole of so-called continental United States (the 48 States and the District of Columbia). The largest bit of land within that most remote area is desolate Kerguelen Island—of interest today only in weather reporting. Therefore, if someone speaks of "this hemisphere" as *the* hemisphere in which the United States is located, it is relevant to ask "Which hemisphere?"

Thus there is no human being anywhere on earth who does not live in some hemisphere that includes *all* of the United States. This brings to mind Edwin Markham's quatrain entitled "Outwitted":

He drew a circle that shut me out—  
Heretic, rebel, a thing to flout.  
But Love and I had the wit to win:  
We drew a circle that took him in.

The peoples of every "culture world" are therefore geographically nearer to the United States than most of us realize—none so remote that they do not live in what we might call "an American hemisphere." The peoples of each of these cultures take natural pride in their own distinctive way of life, in their religious faith and philosophy and in the community of their social institutions. They do not wish to be indiscriminately mixed with all the other peoples of the world, as we now homogenize milk, because each regards itself in some cherished way as the cream of all the world's

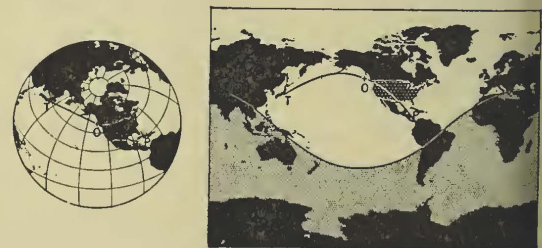


Figure 8. Panamá-Tokyo hemisphere

The point O at the center of the hemisphere map on the left is the point midway on the great circle between Panamá and Tokyo, which is the straight line P-T on this map, about 7,320 geographical or nautical miles in length. The white-ocean area on the Miller map at the right is the same hemisphere, and the curve P-O-T is the same great circle course.

peoples. At least the Asian peoples of India, China, and Japan are pardonably proud of the fact that their forefathers were civilized when the ancestors of the more aggressive peoples now living in northern Europe and the United States were wearing animal skins.

The librarian of a New Hampshire public library, responding to a questionnaire regarding the use of globes, replied "If people in general do not begin to think in terms of the world as a whole, they are probably doomed." I heartily agree.

It is well to recall the words of Professor MacIndier, in his famous 1904 address: "... we shall gain have to deal with a closed political system, and nonetheless that it will be one of worldwide scope. Every explosion of social forces, instead of being dissipated in a surrounding circuit of unknown space and barbaric chaos, will be sharply echoed from the far side of the globe, and weak elements in the political and economic organism of the world will be shattered in consequence."<sup>5</sup>



Figure 9. Moscow-centered hemisphere

The hemisphere centered at Moscow, U.S.S.R., is the white-ocean hemisphere on the left. The small white cross on both maps is Moscow. It includes most of North America, all of Africa and Asia, and much of Indonesia—and thus most of the world's population.

The roundness of the earth is very real in human relations. A globe is not merely an ornament nor backdrop for photographs. The stamp of the earth's sphericity is evident in all of the world patterns that have yet been perceived in the geographical, biogeographic, and social sciences, all of them hugging closely to the roundness of the earth. Consider the orogenic (mountain-building) patterns and earthquake zones, the currents of air (both surface and upper air), and all the other phenomena of world weather, the ocean currents, man's routes of travel by air and sea, and his telecommunication patterns. In the writer's opinion, the time has come to study logistics seriously on the spherical surface of the globe: cost-distances and time-distances by sea routes and land routes versus air routes, and communications of all sorts. Eventually even the patterns of man's political

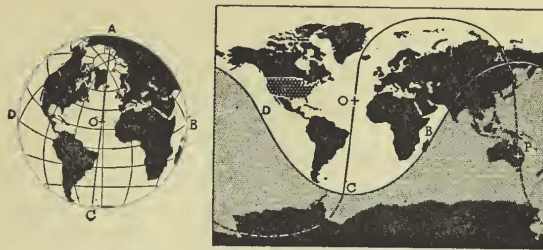


Figure 10. An important North Atlantic hemisphere

The straight line AOC through the center point (about 28° N., 31° W.) divides this North Atlantic hemisphere into quarter-spheres. The western quarter-sphere thus contains all of North and South America, including Greenland, and a small portion of Siberia. The eastern quarter-sphere comprises all of Europe and Africa (including most of Madagascar) and more than 40 percent of the area of Asia. The limit of the hemisphere, ABCDA on both maps, in a complete great circle (like the equator or any meridian circle). The line AOC which divides it into halves is half of such a great circle, the other half of which is APC, the dotted line in the shaded half of the Miller map at the right.

institutions will probably develop, or be discovered already to bear, the unmistakable imprint of the global relations of all mankind.

The globality of relations of the United States is today measurably enhanced by the presence on our shores of the United Nations. As we recall the fears of many of our forefathers concerning the adoption of the Constitution of the United States of America in 1787-88, we realize how they parallel some of the fears voiced in our own time. They could not imagine, 166 years ago, how peoples so diverse as those of our original Thirteen States, separated from one another by weeks of the most arduous travel, could ever become an integrated nation. Patrick Henry, frightened by the language of the preamble, demanded "what right they had to say, *We the people of the United States*, instead of *We the States*, in Order to form a more perfect Union . . ." In replying to Madison, Patrick Henry said "I see the awful immensity of the dangers with which it is pregnant. I see it. I feel it. . . . Its adoption may involve the misery of the other hemispheres" (note the plural "hemispheres"). "The district, . . . 'this ten miles square,'" said George Mason of Virginia, "may set at defiance the laws of the surrounding states . . . and may . . . become the sanctuary of the blackest crimes." Benjamin Franklin could say only "I consent, Sir, to this Constitution because I expect no better, and because I am not sure that it is not the best." Writing in the hindsight wisdom of our generation, Carl Van Doren observed "Those who believed were more right than those who doubted."<sup>6</sup>

<sup>5</sup> *Geographical Journal*, vol. 23, Apr. 1904, p. 422.

<sup>6</sup> *The Great Rehearsal*, p. 251.

And in our own day it is clear that many problems cannot be solved by any nation alone or even by small groups of nations. It is by a significant act of faith that the preamble of the charter of the United Nations begins with the words, "We the peoples of the United Nations"—faith in the lessons of history, not least in the history of our own United States. The U.N. Charter is based not on an ideology such as dialectical materialism but on the grim determination "to save succeeding generations from the scourge of war," whose engines of destruction have since become more awful than their scientist designers intended or expected. From the viewpoint of political science I suppose the U.N. structure is sound in its flexibility and in the inclusion of specialized agencies created to deal with critical problems in food and agriculture, world health, meteorology, civil aviation, labor, trade, telecommunications, and the like. It seems relevant to recall that "Ideologies divide; projects unite." The exploitability of the divisiveness of ideologies is now apparent. The cohesive property of projects is increasingly manifest in the operations of multinational staffs of the United Nations and several of the specialized agencies, as in increasing and improving food production, health and sanitation programs, and technical assistance in underdeveloped areas.

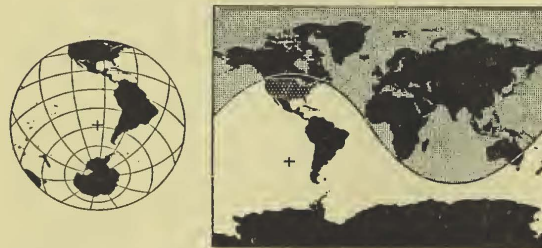


Figure 11. Hemisphere with the northern limits of the United States at its edge

This hemisphere, which has the corners of Maine and the State of Washington at its northern edge, is centered near 38° S., 98° W., in the South Pacific. It includes a very narrow strip of Canada, all of Mexico, Central America and South America and Antarctica, and the more densely populated part of Australia. The white-ocean area on the Miller projection map at the right delineates the same hemisphere.

If Haushofer and Hitler or the Japanese military strategists ever made intelligent use of globes, I have never been able to discover it. What they might have done or might have decided not to attempt, if they had visualized geographical relationships and situations more accurately, we can only guess. But it is clear that misconceptions of global relations, concerning which many people speak very glibly—on the part of men in high places either in this or almost any other large

country—can so distort, or in the past have so distorted, the facts of another nation's capabilities and intentions as to compromise peace or to start or lose wars. This is only one of the reasons why flat-map thinking about world relationships may be treacherously deceptive and politically and socially dangerous.

We cannot really comprehend many of our own national problems except in their true relationships to the whole. As a corollary it is the writer's conviction that:

He who would solve world problems must understand them;  
 He who would understand world problems must visualize them; and  
 He who would visualize world problems should study them on the spherical surface of a globe.

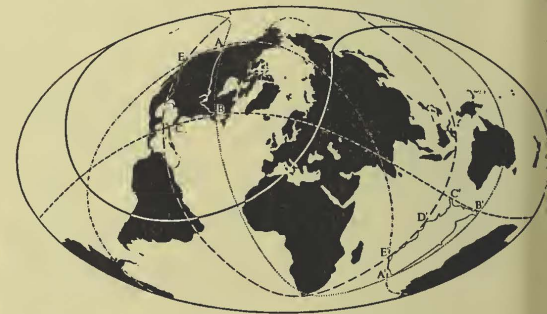


Figure 12. The sum of all hemispheres containing all of the United States

The sum of all hemispheres that include the entire United States is indicated in reverse on this world map on the Briesemeister equal-area projection, by bringing out the only area no part of which can be included in a hemisphere that embraces all of the 48 States and the District of Columbia.

The outermost points of the United States are marked by the letters A, B, C, D and E; and the points antipodal to them (as if one were to stick a hatpin five times through the center of the earth, coming out on the other side) are lettered A', B', C', D', and E'. The dotted line passing through A and B, across Canada and west of Africa and crossing Australia, is the great circle that outlines the hemisphere shown in figure 11. A series of hemispheres, each including all of the United States, can similarly be defined, bounded by the great circles passing through BC, CD (not shown), DE, and EA, which are shown on the map in distinctive dashed lines, each completely encircling the earth.

The only area which lies wholly outside all of these U.S. hemispheres is the area in the south Indian Ocean bounded by these curves, which are tangent to an inverted outline mirror image of the United States (which is therefore but little larger than the United States itself), and is therefore the only portion of the earth no part of which can be included in a hemisphere embracing the entire United States.

The continuous curve in a solid line is the line of the centers of all hemispheres which barely include all of the United States. Therefore any hemisphere centered at a point inside that curve will include the United States and somewhat more.



The obstacles to taking properly into account the rapidly changing relations between people on a worldwide scale are twofold: (1) political and institutional and (2) physical and technical.

#### Political and Institutional Roadblocks

It is not only the United States but also most of the other nations of the world that are experiencing global relations for the first time in their history. And the political and institutional difficulties in the way of each nation's adapting itself to the new worldwide relationships are very great. It is not people but the inadequacies of political institutions (dating, of course, from pre-atomic ages) that now constitute the chief roadblock to effective cooperation as world citizens, in the opinion of Maj. Gen. G. Brock Chisholm, well-known Canadian psychiatrist, who was until recently Director-General of the World Health Organization. He notes that there is need of flexibility to permit quicker and freer decisions in international affairs by heads of government, without danger to democratic processes. It may therefore be well to reexamine what ought to be done in the national interest to adapt each nation's institutions and procedures to the necessities of efficient operation on a worldwide scale. What national constitutions and legislative procedures, in fact, have yet been conceived with a view to assuring relatively prompt and responsible action in collaboration with the governments and peoples of other nations? Dr. Chisholm adds that there is a need of expert international civil servants, who should not sacrifice any of their national allegiance, and that their training is more exacting than that of domestic civil services.

Another serious roadblock to development of normal world relationships is widespread fear. It is no longer wild animals we fear but our fellow men—what they may do to us, what they think we think. There is xenophobia—fear and distrust of foreign peoples, ideas, and products. Men governed by fear become victims of a sort of “phobiocracy”—rule by fear and by “phobocrats.” Strangely, the fears among nations are greatest in those that possess the weirdest primordial cosmic powers of destruction of one another and of everything they cherish on earth.

It sometimes seems that vast new human energies would be released if we were to nourish faith in the integrity of the universe and its Creator, in the sound principles enunciated by our forefathers in each of our culture worlds, and in the ability and desire of many of our fellow men of all lands to rise above the inane excesses of nationalism that sometimes seem to threaten to engulf us all.

#### Physical and Technical Obstacles

Many physical and technical difficulties must be overcome before we can effectively and easily

visualize geographical relationships that can be perceived realistically only on globes. Mechanically it is easy to project pinpoints of light representing stars upon a planetarium dome and thus study the precession of the equinoxes, eclipses, and movements of the planet “wanderers” among the fixed stars. But it is much more difficult to project continuous coasts, rivers, and geographical distributions and to superpose one set of geographical data on another.

For example, there is thus far no practical means of presenting a globe, or of projecting onto a screen the appearance of a globe, with subject matter on it, in a lecture room or, what seems to be technically very different, on a television screen.

But the time must come, I believe, when anyone studying relationships, let us say, between two points 5,000 or more miles apart, or involving an area as large as one-tenth of the earth's surface, will normally turn to a globe supplemented by transparent measuring and comparing devices that will make it easier to use a globe than a map.

The writer's most useful present unofficial responsibility, in his own estimation, is serving as chairman of the National Research Council's “Committee on Construction and Use of Precise Globes and Spherical Maps,” which is working on a comprehensive program—thus far solely with government funds, but we hope later also with private funds, especially in the educational field.

#### Study of Techniques

The study of many categories of geographical phenomena on the global surface presents striking difficulties. Printing population distribution, cost- and time-distance data, and many other subjects on globe gores and mounting them on globes seems, at the moment, prohibitive in cost. Projection from lantern slides onto spherical surfaces may prove most economical but necessitates entirely new techniques involving special lenses and projection apparatus and perhaps projecting onto concave surfaces.

Research and development in problems of globe production include determination of means of making globes more accurate and uniform, of transparent materials best adapted for use as spherical overlays and means of imprinting geographical and geometrical patterns upon them, and means of projecting global distributions onto a dome analogous to a planetarium. The total cost may be several hundred thousand dollars.

In any event, a whole generation in all parts of the world should learn, soon, to think in truly “global” terms. Large as the earth may seem to us and complicated though its problems be, we dare not exclude any people or any region

from our thinking. Perhaps if the earth were as large as Jupiter (with about 120 times the surface area of the earth) we could protest with some reason that it was too much for human beings to comprehend. But we need to introduce each generation at a relatively early age to concepts of the world as a whole, to its "wholeness-properties," and to the fact that the whole is more than the sum of all its parts, as the body is more than a mere aggregation of organs and parts. A young generation has already begun to think in terms of subatomic particles (without having to unlearn anything) and knows that matter is not simply "solid, massy, hard, impenetrable, moveable particles," as defined by Sir Isaac Newton in 1707. They easily become accustomed to models of atoms, with nuclei comprising protons and neutrons and with electrons moving in planetary orbits. When children begin early to see and think in world terms, realistically related to the roundness of the earth, the solution of world problems will become tractable.

What a wonderful little celestial ball we live on! To millions of its human tenants it is "the good earth," to little tracts of which they are passionately attached. To its myriad indescribable beauties they are keenly sensitive—to visible beauties, only a small part of which have yet been caught in color photography, to its audible beauties, as in the tidal wave of birdsong that sweeps around the earth daily ahead of the sunrise. Sweeping along in its orbit around the sun at more than 18 miles per second (a velocity much exceeding the swiftest modern projectiles), yet stable enough for towering skyscrapers, it provides the stage upon which all natural and human history has been and is being played. With its flowers in crannied walls and light received from infinitely distant galaxies and island universes, it is tinged with mystery and wonder enough to entrance generations for all time to come. As we fit together all the bits of information we learn about atoms and stars and about the age of the universe and of the earth, we recall the Greek dictum, "That which is first as cause is last in discovery." And when we trace our geographical data on globes and part-globes, we shall probably realize that the world of human relationships, in which we are so intimately involved, is less simple than we sometimes assume and that there are global patterns in human affairs far greater than we yet perceive.

• *Mr. Boggs, author of the above article, is Special Adviser on Geography, Department of State. His article is based on an invited paper which he read before the 50th anniversary meeting of the Association of American Geographers at Philadelphia, Pa., on April 12.*

## U.S., Turkey Discuss Matters of Common Interest

### TEXT OF JOINT COMMUNIQUE <sup>1</sup>

Press release 300 dated June 5

The Governments of the United States and Turkey wish to express their mutual satisfaction as a result of the visit of Prime Minister Adnan Menderes to Washington. It has provided a valuable opportunity for the Turkish Prime Minister to discuss thoroughly with President Eisenhower, Secretary of State Dulles, Secretary of Defense Wilson, Foa Director Stassen, and other high ranking United States officials matters of common interest to the two countries.

During his visit the Prime Minister also met with members of Congress who are active in committees concerned with foreign affairs. In such meetings Mr. Menderes engaged in a frank exchange of views and opinions relative to the common goals and interests of our two countries.

Further, the visit afforded an occasion for the Prime Minister to place before the United States Government a clear and forceful statement of Turkish policy to act as a convinced and determined member of NATO, to develop closer political and military ties with other friendly nations in the free world, in and out of NATO, and to support the mutual efforts of the United States and other free nations to organize for world security.

The official visit has also provided another opportunity for the United States Government to reaffirm its recognition of the fact that Turkey has assumed a defense posture which includes a modernized armed force and which places a heavy strain upon the resources of its country and people, and that substantial assistance from the United States and from other free nations who are in a position to render such assistance is necessary in order to permit the attainment of our common objectives for a collective defense. In this direction, the United States Government intends to continue to base its program of military assistance to the Republic of Turkey toward meeting the requirements of the NATO-approved Turkish force goals. In order to enable Turkey to meet the requirements of her armed forces under the above program during the coming year, the United States Government, subject to the action of Congress and a review of commitments and priorities, is disposed to increase its presently approved military assistance program. The United States Government is further prepared to accelerate deliveries of items in the present pipeline of roughly one-half billion dollars of military equipment

<sup>1</sup> Issued at the conclusion of the visit to Washington of Adnan Menderes, Prime Minister of Turkey, June 1-5.