

THE CHANGING UNITED STATES:

MAN, SPACE AND RESOURCES

by

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Gentlemen:

My topic this morning is the Changing United States - Man, Space and Resources. The thread that will run through this lecture, as you will soon observe, is that of spatial or areal relations. Preoccupation with areal relations is the preoccupation of most geographers, just as dollars, or input-output **data** are the specialized preoccupation of our economist colleagues. And by areal, I do not mean "as seen from the air". I mean "pertaining to an area".

If I may seem to be overly concerned with the significance of space in relation to American National Security Studies, I will try to justify this by pointing out that the spatial factor is too often either overlooked or misinterpreted as being a rigid, unchanging phenomenon. In this lecture, space will be treated as a frame of reference for analyzing the changing American population and resource base.

Regionalism

First, let us look at space in relation to American regionalism. The land - its character and function - is the stage on which our unique political, economic and social system plays the role that we term the "American Way of Life." Ours is a country composed of smaller countries that differ from one another physiographically, climatically, agriculturally, and culturally. These smaller "countries" and their differences are usually described by the term "Regionalism" (a more acceptable term, these days, than "sectionalism").

Often we equate geographic regions with the apparently rigid framework that characterizes the physical landscape. In fact, however, the geographic regions of the United States constantly change in their character and extent, because the geographic region is a combination of various physical, biotic and cultural regions. As these latter change in relation to one another, the geographic region - which is something more than a simple sum-total of a number of single feature physical and cultural regions - also changes.

To compare geographic regions with other types of regions, let us first look at a simplified map of the land-forms of the United States:

The map contains the following:

- 1) The Coastal Plain
- 2) The Appalachians (the Older Piedmont and the Younger Blue Ridge, Ridge and Valley, Great Valley and Plateau Provinces)
- 3) The Interior Plains (the Mississippi Lowland, Low Plains and High Plains)
- 4) The Rocky Mountains (Piedmont and Ranges)
- 5) The Intermontane Plateaus and Basins (Columbia Plateau, Colorado Plateau and Great American Desert)
- 6) The Pacific Mountain System (Ranges and Interior Valleys)

Compare this landform map with one of America's geographical regions. As we can see, these two maps are far from similar, and this would also be the case if we were to compare climatic, soil or vegetational regions.

In analyzing the geographic regions closely, we find that (1) they overlap various physical boundaries, and (2) they are dynamic and changing.

Regions of the Past

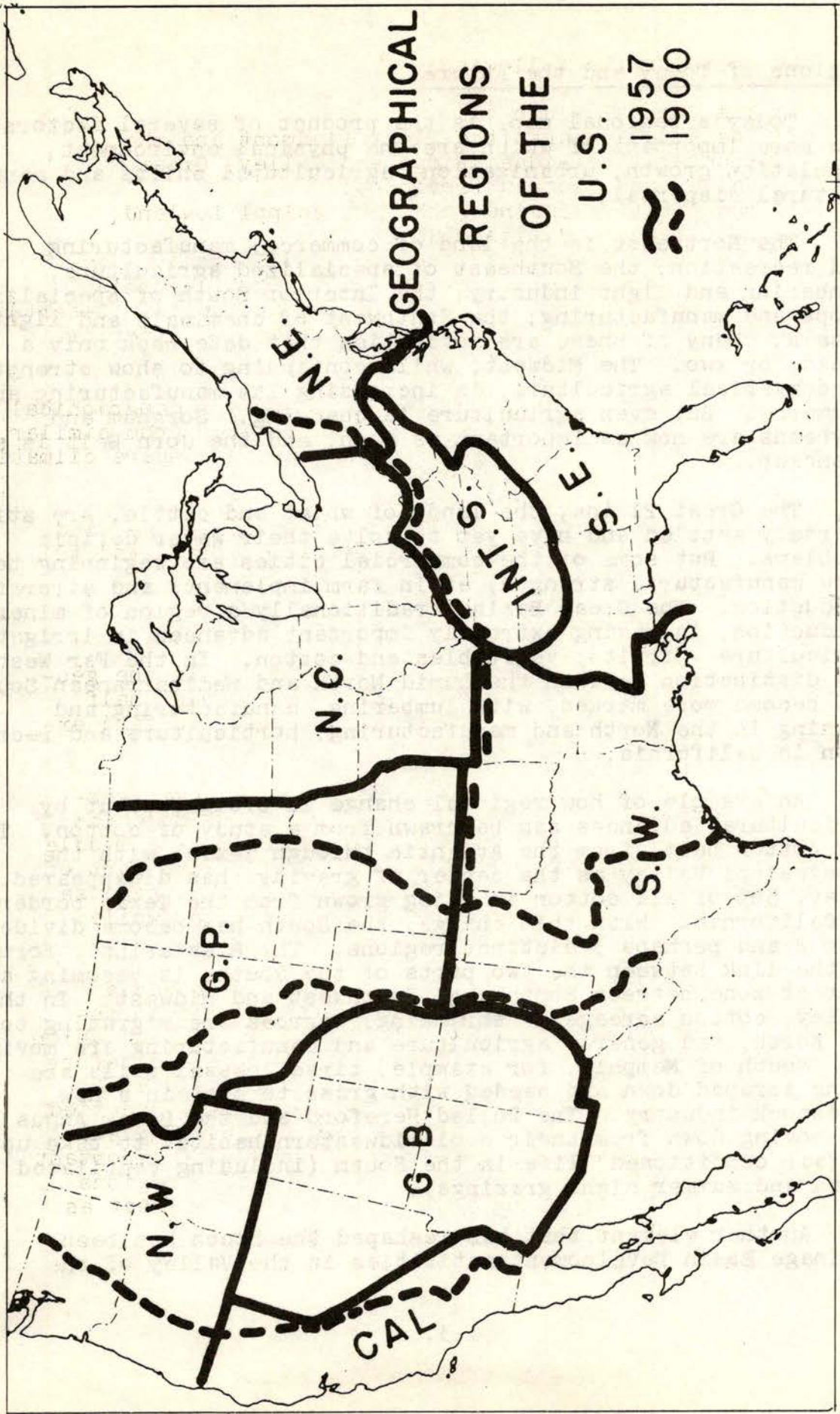
The map shown here represents the changes in the geographic regions of the United States over the past half century. But we can go back to Colonial times to find examples of regional change.

In the **Early** Colonial period there were three geographical regions in the East: the Southern, Middle and Northeastern. But while Maryland was regarded as a Middle Colony at the beginning of this era, it had become part of the Southern Region by the end of Colonial times, because tobacco and slave culture gained a firm position, while manufacturing failed to entrench itself.

At the end of the nineteenth century, there was a radically different regional map. The Middle and Northeastern regions had emerged as one. The Middle West, which had had such close ties to the Northeast during and before the Civil War was now quite distinct, and the old links of history, settlement and land use patterns that had tied the interior plains to Northern New York and New England had lost much of their meaning. Perhaps the most important conflicting set of interests among all of these regions stemmed from the dryness and land policies of the West as compared to the humid East.

GEOGRAPHICAL REGIONS OF THE U.S.

U.S.
1957
1900



Regions of Today and the Future

Today's regional map is the product of several factors, the more important of which are the physical environment, population growth, urbanization, agricultural shifts and manufacturing dispersal.

The Northeast is the land of commerce, manufacturing and recreation; the Southeast of specialized agriculture, lumbering and light industry; the Interior South of specialized crops and manufacturing; the Southwest of chemicals and light metals. Many of these are activities that date back only a decade or two. The Midwest, while continuing to show strength in commercial agriculture, is increasing its manufacturing and commerce. But even agriculture is changing. Sorghum and soybeans are now as important as corn, and the Corn Belt is a misnomer.

The Great Plains, the lands of wheat and cattle, are still sparsely settled and have yet to solve their water deficit problems. But some of the commercial cities are beginning to show manufacturing strength, as in farm implements and aircraft production. The Great Basin, traditionally a region of mineral production, is making extremely important advances in irrigated agriculture - fruits, vegetables and cotton. In the Far West, the distinction between the humid North and Mediterranean South has become more marked, with lumbering, manufacturing and fishing in the North and manufacturing, horticulture and recreation in California.

An example of how regional change is brought about by agricultural advances can be drawn from a study of cotton. The old cotton belt, from the Atlantic through Texas, with the Mississippi Valley as the center of gravity, has disappeared. Today, 56% of all cotton is being grown from the Texas borders to California. With this change, the South has become divided into 2 and perhaps 3 distinct regions. The Mississippi, formerly the link between the two parts of the South, is becoming a contact zone between Southeast, Southwest and Midwest. In this valley, cotton acreage is shrinking, negroes are migrating to the North, and general agriculture and manufacturing are moving in. South of Memphis, for example, tired loessal soils are being scraped down and seeded with grass to sustain a new livestock industry. The Polled Hereford and the Black Angus are moving down from their cool midwestern habitat to take up an "air conditioned" life in the South (including ventilated barns and summer night grazings).

Another element that has reshaped the South has been Drainage Basin Development activities in the Valley of the

Tennessee. A third has been the growth of manufacturing along the Gulf Coast. All of this has contributed to create three geographical regions where formerly there was one.

What regional changes may we anticipate in the next half century? The Northeast and the Great Lakes regions will probably become unified. Factors contributing to this will be the development of large ocean ports along the St. Lawrence Seaway and the filling in of empty or rural areas with urban populations.

The Ohio, Mississippi and Missouri Basins may emerge as a second distinct mixed agricultural and manufacturing region, embracing the present Northern Great Plains, Western North Central and Interior South regions.

Regions in general will become larger, filled in by a population that will be more effectively linked by transportation and communications. The improvement of highways, waterways and air routes may cut down the current advantages that our long-haul East-West Railroad system possesses and give more of a North-South axial characteristic to our regions.

Population Increase

Any number of graphs and charts could be displayed to demonstrate what is so well known: that the population of the United States is increasing rapidly (at the rate of 1.7%, or nearly 3 million persons annually) - that today we have 171 million people - that by 1965 we will have from 190 to 195 million people, and by 1975, 205 to 228 million people.

We did not anticipate this growth because we assumed that our population was going to follow the leveling off process experienced by Western Europe. There, population is approaching stability because of various social and economic effects of urbanization, as seen in such countries as France, the United Kingdom and Sweden.

Today, however, we recognize that the Western European experience is not applicable to ours. Greater prosperity, better housing, improved transportation, social attitudes that favor larger families - all of these account for our population increase. And if we think that we can anticipate a decline in our population increase in the near future, let us remember that we are due for an increase in the rate of family formation at about 1965 - when the "War Babies" will have come of age.

Population Dispersal

How is this population being absorbed in a spatial sense? First, we should note that the Northeast and North Central regions are losing their overwhelming dominance as the centers for our population. In 1930, 64% of the population of the U.S. was in these two regions. Today, they account for 58% of the population; by 1975, they will probably account for only 56% of the population. The Northeast and North Central States are expected to gain 27 million people by 1975, but the South and West should gain 33 million people.

Urbanization

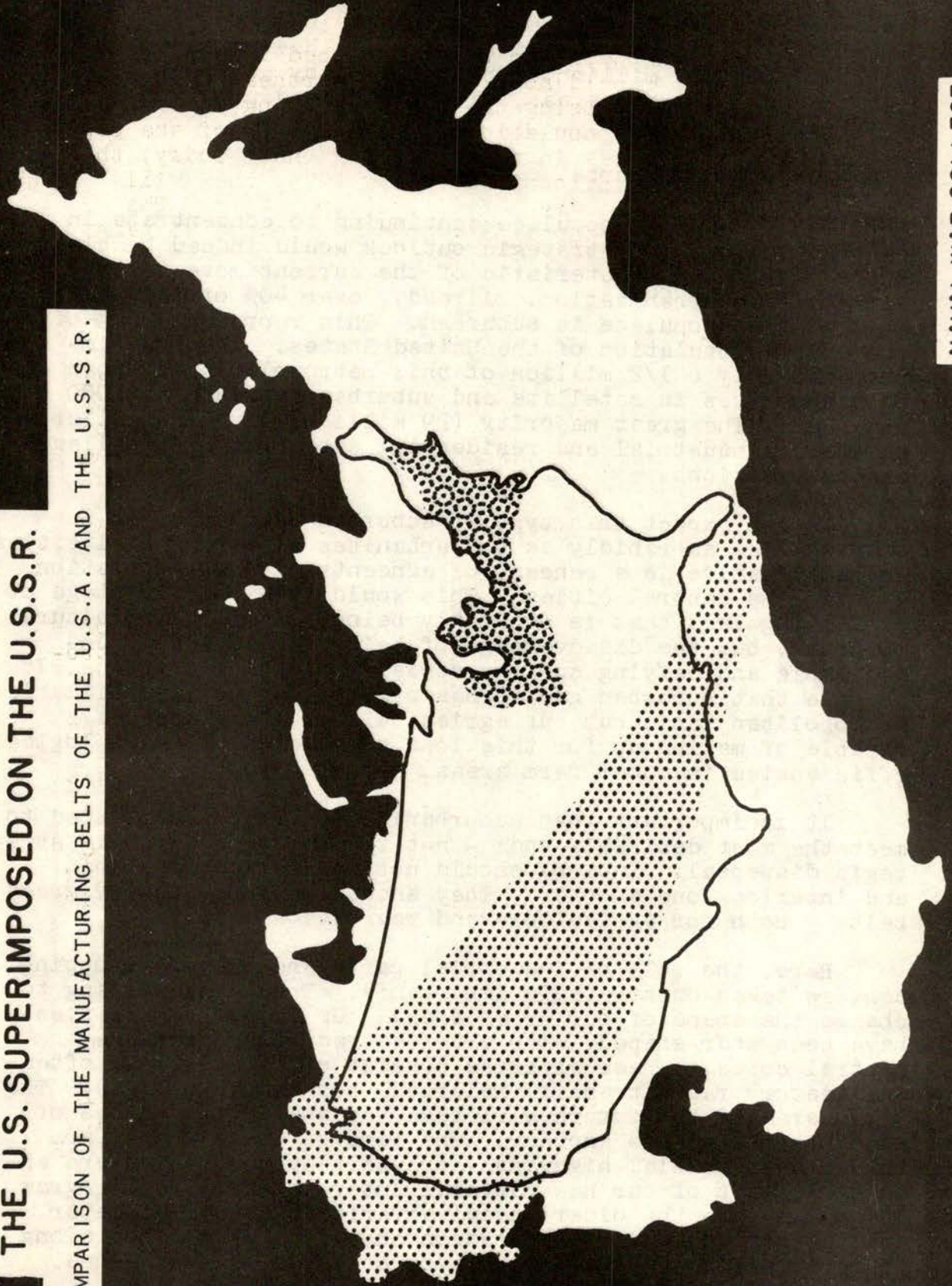
While our population is spreading over the national map, and thus appears to be decreasing our vulnerability to nuclear attack, another process is taking place that appears to be increasing our vulnerability. This is the process of urbanization. Nearly two-thirds of our population is now urban, and this trend will continue to intensify, so that it will be slightly over 70% by 1975.

Our urban population today number 110 million. Of these, the great majority (86 million) live in metropolitan areas of 100,000 population and over. What is of strategic significance is the fact that 60% of this metropolitan population lives in large, central cities. And perhaps of even greater importance is the concentration of these central cities within the American Manufacturing Belt. As seen from the map, this belt extends in a triangle from the Eastern Seaboard to Milwaukee to St. Louis an area of 400,000 sq. miles.

Within the American Manufacturing Belt there are 60 central cities with populations of 100,000 and over, with a combined total of 31 million. If we consider standard metropolitan areas, the triangle contains 79 such areas with populations of over 100,000, with a combined total of 45 million. In addition, a few million rural folk are scattered through the belt. By contrast, the U.S.S.R.'s manufacturing belt is 2 1/2 times the size of ours, and contains within it 111 cities with populations of 100,000 and over, with a combined total of 46 million. Evenly spread through this belt are well over 100 million rural folk. The dispersal advantage held by the Soviet Union, especially when we compare central cities, is most readily apparent.

THE U.S. SUPERIMPOSED ON THE U.S.S.R.

COMPARISON OF THE MANUFACTURING BELTS OF THE U.S.A. AND THE U.S.S.R.



Another measure of urban concentration is that of very large cities. In the U. S., there are 16 metropolitan areas with populations of 1 million and over, having a combined population of 49 million. The U.S.S.R. by contrast, has only two such major urban areas, with a combined population of 9 1/2 million.

The Move to the Suburbs

Were the urban populace continuing to concentrate in central cities, the strategic outlook would indeed be bleak. But a distinct characteristic of the current move to the cities is suburbanization. Already, over 40% of the total metropolitan populace is suburban. This represents 22% of the entire population of the United States. And most important, only 6 1/2 million of this metropolitan suburban populace lives in satellite and suburban cities of 50,000 and over. The great majority (29 million) live in smaller, scattered industrial and residential cities, towns, villages and subdivisions.

We can expect this type of suburban population to increase twice as rapidly as the urbanites of our central cities. The alternative is a renewal of concentration of population within the central cities. This would have the advantage of conserving land that is currently being used for agricultural purposes, but the disadvantage of being strategically undesirable and defying current social and economic trends. It is true that suburban growth has preempted 5% of all tillable metropolitan land, but our agricultural economy appears capable of making up for this loss of acreage by technological efficiencies in other farm areas.

It is important that suburbanization forces be shaped to meet the most desirable ends - not the least of which is strategic dispersal. Suburbs should not be allowed to adjoin and interlock one another. They should be separated by green belts - both for agriculture and recreation.

Here, the role of industrial parks and planned shopping centers takes on strategic importance. These are helping to change the shape of our urban areas. Up to now, our cities have been star-shaped, with arteries radiating from the central cores. These arteries consist of parallel and often duplicatory rapid transit, railroad, bus and auto lines. The urban area of the future will take the shape of a series of wheels set into one another. The rims of these wheels are the circumferential highways - the belt systems which are an integral part of our new National Interstate Highway program. The spokes are the older radial arteries. Sooner or later duplicatory public transportation should be eliminated along these arteries - probably in favor of rapid transit lines.

As has been noted, the new pattern of urban areas is being partly shaped by planned industrial parks and shopping centers. These have taken advantage of available cheaper land peripheral to central cities, and of intersecting radial and circumferential routes, to encourage the spread of the suburban population.

In channeling shoppers, workers, office help and management to key suburban centers, the emphasis upon the automobile and the strain upon highways will be increased. But we must recognize that this will largely consist of shorthaul passenger traffic (especially preferred by women who are the bulk of the nation's shoppers and who are becoming increasingly active in the labor force). The strain on facilities to take people downtown will be commensurately decreased.

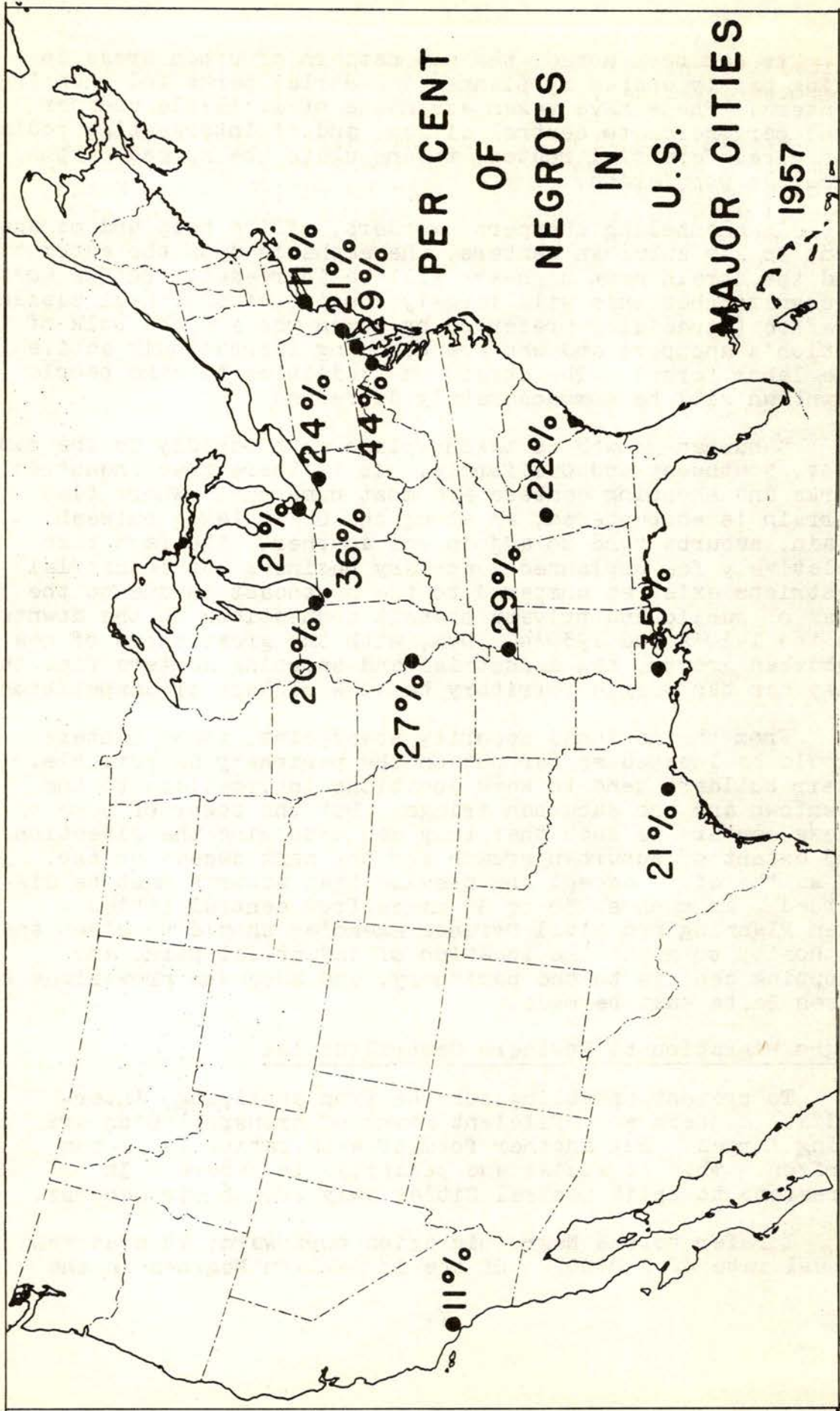
Suburban growth is taking place most rapidly in the mid-west, southwest and California. It is there that industrial parks and shopping centers are most numerous. Where flat terrain is encountered, as along the Great Lakes outwash plain, suburbs tend to adjoin one another. The fact that relatively few unplanned secondary business and industrial districts exist as compared to the northeast is due to the ease of public and private transit connections to the downtown in the 1920's and 1930's. Now, with the great surge of new suburban growth, new industrial and shopping centers find that they can tap virgin territory because of lack of competition.

From the national security standpoint, these centers should be located as far out on the periphery as possible. Their builders tend to seek locations intermediate to the downtown and the suburban fringe. But the power of some of these centers is such that they can determine the direction and extent of suburban growth for the next decade or two. If we therefore accept the premise that suburbs must be dispersed - as much as 30 to 50 miles from central cities - then Planning and Civil Defense Agencies should be given the authority to guide the location of industrial parks and shopping centers to the periphery, and adequate provisions for Green Belts must be made.

Negro Migration to Northern Central Cities

To prevent sprawling suburbs from atomizing, intermediate centers and efficient means of transportation are being forged. But another form of atomization is on the horizon. This is social and political in nature. It threatens to split Central Cities away from their suburbs.

I refer to the Negro migration northward, at a current annual rate of 200,000. Of the 18 million Negroes in the



United States, 40% now live in the North and almost all of them are urbanized.

By 1962, it is estimated that half of the country's 20 million Negroes will live in the North. The basic problem is that segregation, as practiced by Whites in the North, when coupled with the economic and cultural capabilities of these negro migrants, is confining the Negro to the Central City. Note from the map how the population of Northern Central cities is becoming heavily Negro. Gary, Cleveland, Detroit, Chicago, Baltimore, Washington and Philadelphia show signs of becoming Negro dominated cities within White metropolitan areas. If the current segregationist practices should take on political forms, we might see a virtual abandonment of the Central City by the White suburbanites, and the severing of organic contact between the two areas.

An example of the phenomenal change in population composition is Cleveland. In 1940, the Negro population of the city was 87,000; in 1950, 151,000; today, 220,000. At the rate of increase of the past 17 years, Cleveland could have a Negro majority in 12 years. A more conservative estimate suggests 24 years. Regardless of the projection, Cleveland may soon become Negro dominated.

If Negro migration northward should slow down, or be diverted to suburban or rural areas, the eventuality that I have suggested will not come about. But if the current Negro migration to Central Cities should continue, then we are going to have to devise radically new political and administrative frameworks to prevent racial walls from dividing our metropolitan areas to the detriment of all concerned. Perhaps the answer will lie in metropolitan government which will place the responsibility for the maintenance of the Central Cities upon the entire population. Certainly if ever there was a need to have a federal department, such as a Department of Urban Affairs, address itself to problems such as this, it is now!

The Urban Region

A final aspect of our discussion of population distribution is the urban region. Metropolitan areas have begun to overlap one another, leapfrogging and bypassing rural areas to form continuous regions. We have 18 such urbanized regions today, containing a combined total of 68 million people.

The largest of these regions is the Eastern Seaboard or Megalopolis. It extends from north of Boston to Fairfax County, Virginia and has over 30 million people.

Megalopolis arose as a grouping of the country's major seaports, commercial centers and manufacturing activities. Its future growth is **uncertain** - some feel that it will continue to grow, but only along the coast north to Portland and south to Norfolk. Others feel that the region will expand westward along the New York and Pennsylvania Corridors to include the Great Lakes areas.

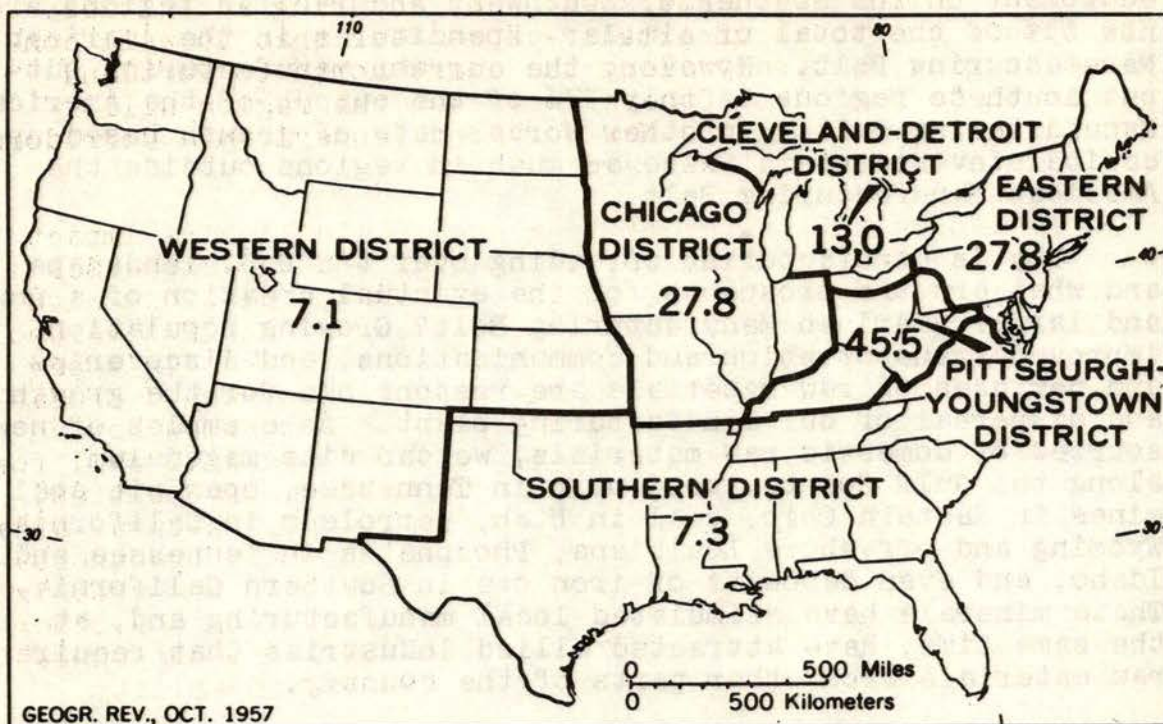
A major significance of Megalopolis lies in its impact upon population distribution. Megalopolis today expresses a more even distribution of our increasing population, with densities of 100 to 250 persons per square mile. If Megalopolis were to expand to the Great Lakes, adjoining areas in Upper New York, Central Pennsylvania and Eastern Ohio would probably become emptier. In this event there is need to plan for an even distribution of the incoming people. This will call for the development of well-spaced medium-sized central cities, with their surrounding rings of suburbs and agricultural areas - all are tied together by an adequate land and air transportation net. By dispersing the population within the urbanized region we shall enhance our national security. On the other hand, poor planning that will permit an imbalance of population within such regions will heighten our vulnerability immeasurably.

Resource Distribution

The map of American manufacturing is undergoing change, although this change has not yet produced the dispersal of facilities that strategic planners would like to see. As of today, the American Manufacturing Belt shows only slightly less relative strength than it did two decades ago. Sixty-eight per cent of the value added by manufacturing is generated by factories located within the belt indicated on the map. A major reason for this continued dominance is the industrial strength of the Pittsburgh-Cleveland-Detroit, Chicago and Miami Valley Districts. Government-financed industry was heavily built up in these areas during the Second World War, and the momentum of this industry in attracting all forms of supplementary and by-product industries has been carried over, accelerated during the Korean War.

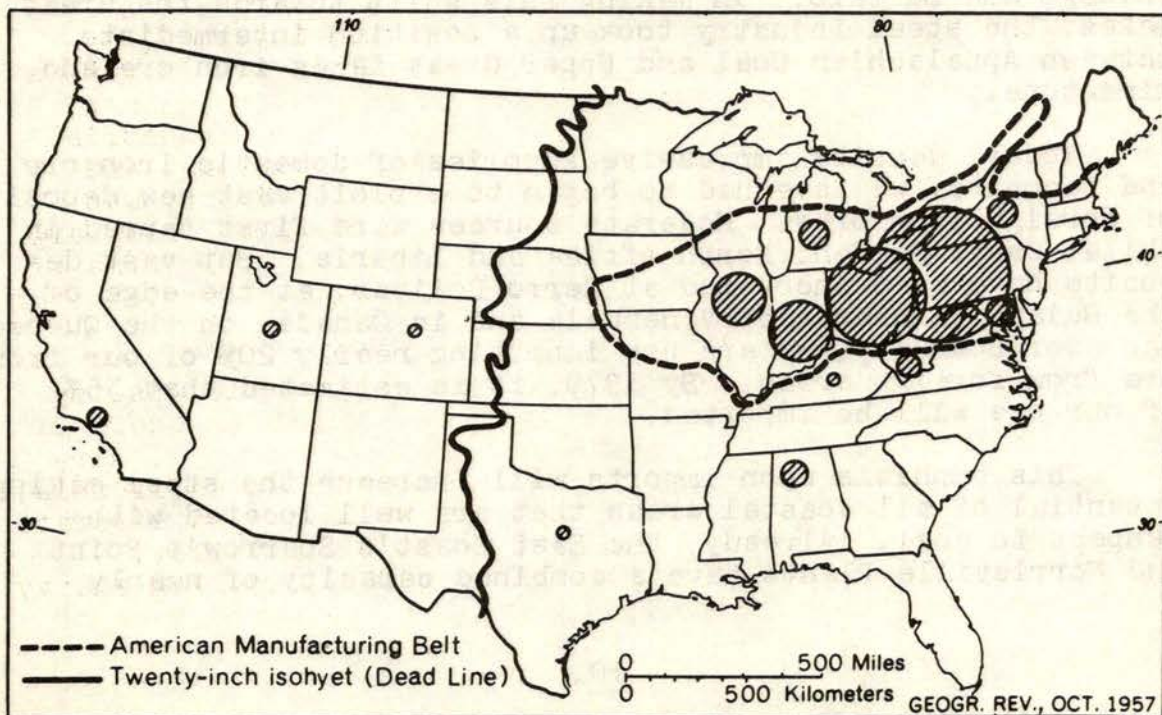
But outside manufacturing districts are on the upswing and we are beginning to see them gain an increasing share of the nation's manufacturing business. Examples are: 1) Aircraft, electronics, shipbuilding and petroleum in California, 2) aluminum, chemicals, metallurgy, shipbuilding and aircraft in the Gulf Southwest, 3) chemicals in the Ohio Valley, 4) Aircraft in the Great Plains, and 5) Textiles, nuclear energy and forest products in the Southeast. To get some idea of

NAVAL WAR COLLEGE



U.S. STEEL PRODUCTION (IN MILLIONS OF TONS)

1956



the trend, we can note that expenditures for new plants and equipment in the Southeast, Southwest and Pacific regions are now 63% of the total of similar expenditures in the American Manufacturing Belt. However, the current manufacturing output in these regions is only 37% of the output of the American Manufacturing Belt. In other words, rate of growth based upon capital investment is twice as much in regions outside the American Manufacturing Belt.

Why is manufacturing spreading over the U.S. landscape and what are the prospects for the eventual creation of a new and larger American Manufacturing Belt? Growing population, improved transportation and communications, and discoveries and new uses of raw materials are responsible for the growth and dispersal of our manufacturing plant. As examples of new sources of domestic raw materials, we can cite magnesium along the Gulf Coasts, wood pulp in Tennessee, open pit coal mines in Eastern Ohio, coal in Utah, petroleum in California, Wyoming and off-shore Louisiana, Phosphates in Tennessee and Idaho, and even deposits of iron ore in Southern California. These minerals have stimulated local manufacturing and, at the same time, have attracted allied industries that require raw materials from other parts of the country.

Another reason for manufacturing dispersal lies in the greater use of imported raw materials. One such resource that will probably reshape the map of the American Iron and Steel Industry is iron ore. As we look back, we see how the industry developed in Pittsburgh and then followed the Ohio River - Youngstown Corridor to Cleveland, Lorain, Detroit, Chicago and Buffalo. In making this shift towards the Great Lakes, the steel industry took up a position intermediate between Appalachian Coal and Upper Great Lakes iron ore and limestone.

Today, despite impressive supplies of domestic iron ore and taconite, we have had to begin to exploit vast new deposits of foreign iron ores. Moderate sources were first tapped in Chile, Cuba, Sweden, North Africa and Liberia. But vast deposits have been uncovered at Cerro Bolivar, at the edge of the Guiana Highlands of Venezuela and in Canada, on the Quebec-Labrador Boundary. We are now importing nearly 20% of our iron ore from foreign areas. By 1970, it is estimated that 35% of our ore will be imported.

This emphasis upon imports will increase the steel-making potential of all coastal areas that are well located with respect to coal. Already, the East Coast's Sparrow's Point and Morrisville Plants have a combined capacity of nearly

8,000,000 tons of steel. Another plant is being built near Camden.

Birmingham is using Venezuelan ores because its local ores have a low iron content. Improvement of the waterways to allow shipment of Southern Appalachian coal to Mobile might stimulate the creation of a steel industry there. Plants along the lower Mississippi using Ohio River Coal may also be anticipated. Finally, the small plants along the Gulf at Daingerfield and Houston, and in California at Fontana can be expected to increase their capacity. While the center of gravity of the steel industry will remain along the Great Lakes, the increase of capacity along the coastal areas will be economically, as well as strategically beneficial to the nation as a whole, for a dispersed steel industry means greater dispersal in the transportation, construction, machinery, fuel and mining equipment and non-durable consumer goods industries.

The aluminum industry is another example of a change in an industry's location that is dependent in great measure upon foreign raw materials. In the last three years, this industry's location concentration has shifted from the Northwest to the Texas-Louisiana-Arkansas area. The major sources of the world's bauxite are in Surinam, Jamaica, British Guiana, the Gold Coast, Brazil and Hispaniola. As Pacific Northwest hydro-electric power has become scarcer, the Gulf's natural gas and lignite has taken on new importance in aluminum reduction. In this context, we should note that the cost of fuel, in making aluminum metal, is 20 percent of the total cost - higher than the fuel cost involved in extracting alumina from bauxite. We should also note, at this juncture, that the growth of the industry in Canada, first at Arvida on the Saguenay and most recently at Kitimat, is largely aimed at the U. S. market.

Many other industries are taking a coastal location because of their dependence upon such imported materials as woodpulp from New Brunswick, petroleum from Venezuela and the Middle East and natural gas from Canada (Alberta and now the Peace River in British Columbia). We could add manganese, cobalt, uranium, abrasives, mica, chrome, copper, tungsten and tin to this list. It adds up to the fact that today's rapid industrial growth and dispersal is in part a product of our interdependence with other portions of the Free World, especially the Atlantic Basin through which pass over 80% of our imports.

Table 1

U. S. Imports by General Area

	1955		1937
American Republics	32%		24%
Canada	23%		13%
Western Europe	20%)	
Eastern Europe	1%)	26%
Middle East	3%)	
South and East Asia	14%)	32%
Australia and Oceania	2%		2%
Africa	5%		3%

Table 2

Selected Imports by Country of Origin - 1956

<u>Material</u>	<u>Country</u>
Iron Ore	Canada 47%, Venezuela 24%
Manganese Ore	India 30%, U.S. Af. 13%, Gold Coast 13%, Brazil 11%, F.W.A. 1%
Cobalt	Congo 82%, Canada 2%
Tungsten	Bolivia 20%, Korean Rep. 14%, Arg. 11%, Brazil 10%
Tin(ore, bars, etc.)	Bolivia 9%, Malaya & UK 57%, Indonesia 5%
Bauxite (crude & calcined)	Jamaica 49%, Surinam 39%, B. Guiana 11%
Mica	India 60%, Brazil 27%
Mercury	Spain 33%, Italy 35%, Mexico 24%
Coffee, (raw & green)	Brazil 40%, Colombia 26%, Mexico 6%, Africa 9%
Natural Rubber	Indonesia 32%, Malaya 31%, Thailand 19%, Liberia 8%
Abrasives, Aluminum, etc.	Nearly 100% from Canada
Chrome ores, Metallurgical	Turkey 30%, Rhodesia 28%, U.S. Af. 12%, Philip. 8%
Columbium ores or Concentrates	Nigeria 69%, Belg. Congo 10%, Norway 11%
Beverages	UK 40%, Can. 33%, France 10%, Caribbean .03%
Sawmill products (excl. paper base stocks & paper)	Canada 86%, Japan 3%, Mexico 3%
Jute and Mfgrs.	India 64%, Pakistan 16%, UK 5%, Japan 3%

This interdependence will become increasingly important, as our industrial map changes to keep pace with the growth of population in the South and West. What this means to the need

to keep open Sea Lanes and to maintain strong overseas contacts and bases, I need not stress to you.

In the long run, I believe that the American Manufacturing Belt will expand to include all of the Ohio River district, the Missouri up to Omaha, the Tennessee to Knoxville and the Mississippi. Joined to this will be the Gulf and South Atlantic Coastal Belt and the Inner Belt from Dallas to Jackson to Birmingham, Atlanta and the Southeast Piedmont.. California, from San Francisco to San Diego will become a second Manufacturing Belt, of major importance on the world manufacturing scene.

Summary

To sum up: The regional boundaries of the U. S. are changing and these changes have strategic as well as political significance. Within this changing American scene, it is important that we spur the dispersal of population and manufacturing. Spreading suburbanization over broader areas and encouraging an even population distribution within our urban regions is vital to our national security. I, for one, draw little comfort from those who tell us that our broad and flexible transport net is better prepared for survival in a nuclear war than are the people whom this net must serve. Our goal should be to utilize our dispersed transportation facilities to help disperse our people. Favoring the fulfillment of such a goal is the broad distribution of our domestic resources and our greater dependence upon imports.

A balance of man, space and resources can be achieved within the U. S. in the foreseeable future. We have already made considerable strides in this direction. If we should attack the problem with an energetic and coordinated national effort, we can attain the full measure of strategic dispersal that is so vital to our security in this nuclear age.