



The Geophysics and Cultural Aspects of the Greater Antilles

Curriculum Unit 85.04.04
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The Greater Antilles

The Greater Antilles is a group of islands located in the Caribbean Sea. The countries that make up this island group are Cuba, Haiti, Dominican Republic, Puerto Rico and Jamaica. These are high islands which extend eastward from the Yucatan Peninsula, and divide the Caribbean from the Gulf of Mexico. Geologists believe that the Greater Antilles are summits of a mountain chain which has been raised and submerged at different times in the past. The similarity of rock formations shows that they are connected with mountains in Mexico and Central America.

The Greater Antilles (West Indies) lie in tropical waters but because of the mountain areas and the brisk trade winds the climate is tempered.

In 1492 Columbus sailed from San Salvador (Watling Island) and discovered the islands of Cuba and Hispaniola. On his second voyage he founded the first permanent European settlement in the New World on the island of Hispaniola. On later voyages he discovered still other islands of the West Indies and claimed them for Spain. Columbus thought he had reached the East Indies, and when this was found to be incorrect, the entire Caribbean group of islands became known as the West Indies.

For more than a century the Spanish controlled the West Indies area. Gradually the English, Dutch, French and later the Danes and, for a time, the Swedes, gained control over some areas. The Spanish continued to control the important islands of the West Indies, but the English took over Jamaica in 1670. In the 17th and early 18th centuries pirates and buccaneers, often in the employ of the French and English governments, swarmed the Caribbean attacking Spanish harbors and ships. During the 18th century European powers squabbled over trading rights and ownership of the islands. In 1804 after a series of slave uprisings Santo Dominque became the independent state of Haiti. The Dominican Republic became independent in 1844. As a result of the Spanish-American War in 1898, Cuba became independent and Puerto Rico was annexed to the United States.

The West Indies are located in the Northern Hemisphere within the Tropic of Cancer. It is part of the Western Hemisphere. The coordinates range approximately 60° W longitude (Puerto Rico) to 85° W for the western tip of Cuba. The latitude position runs from about 23° N to 17° N. The fact that the Greater Antilles is located within the Tropic of Cancer suggests that the climate is subtropical to tropical. Although the West Indies are in tropical waters, their mountain areas and brisk trade winds temper the climate. Tropical plants do well on the

lower levels and plants needing cooler temperatures thrive on higher elevations.

Location

The location of a region is the determinate factor in establishing the climate of that region. The proximity to either the equator or the poles can determine whether the region will be warm or cold.

The world has a system, a grid system of imaginary lines running north and south, and east and west. The North Pole is the farthest point north, and the South Pole is the farthest point south, with the equator being the imaginary line halfway between the poles. The equator is the point from which we measure distance north or south. The equator itself is at zero degrees latitude. The N stands for north with the North Pole being 90° N. The S stands for south with the South Pole being 90° S. Latitude lines run from the equator north and from the equator south. Therefore, latitude is the distance north or south of the equator.

(figure available in print form)

Sometimes a place may fall between the latitude lines drawn. Even if there was a line drawn for every degree, there would be places that fall between the latitude lines. Therefore, for more exacting locations, degrees must be further divided. One degree equals 60 minutes. The symbol for minutes is ('). To be more exact, the minute can be further broken into seconds ("). Degrees, minutes and seconds are used for exactness.

Latitude or parallel lines are used to help us locate places north and south of the equator. To determine east and west locations another system of lines is used. These lines are called longitude lines. While latitude lines run parallel and never meet, longitude lines run north and south and meet at the poles. Another name for longitude line is meridian. Just as the equator is at 0° latitude, there is a meridian of 0° longitude, it is called the prime meridian. The prime meridian passes through Greenwich, England. All longitude lines running east of Greenwich are labeled E and all lines running west of Greenwich are labeled W.

(figure available in print form)

Just as we measure latitude in degrees, minutes and seconds, we measure longitude lines in the same way.

(figure available in print form)

Climate@Text:As the earth orbits the sun, the amount of sunlight striking any region changes continually from day to day.

(figure available in print form)

Note how the angle at which the sun's rays strike the earth changes during the year. When the North Pole points toward the sun, the rays fall more directly on the Northern Hemisphere. The more direct the sun's rays focus on an area the hotter the area. The sun's energy plays a major role in the various life styles of different people around the world. Four factors control the amount of the sun's energy that falls on different parts of the globe. These four factors are the earth's shape, rotation, tilt and revolution.

If the earth were not spinning on its axis, tilted and revolving around the sun, it would still be unequally heated by the sun's energy. This is because the earth is a sphere and more of the sun rays will fall on the equator than on an identical area near the poles. Because the earth is tilted more of the sun's energy will fall

on the equator. Consequently, these areas will be warmer.

The earth does rotate and the sun's rays can only strike areas that face it. Obviously, if the earth did not rotate only that part of the earth facing the sun would get any heat. There would be enormous differences in temperature between the two surfaces, from very hot to very cold. The earth's rotation makes it possible for all the earth's surface to be exposed for an equal amount of time to the warming light of day to the cooling dark of night. The earth rotates on its axis once every twenty-four hours.

If the earth's axis pointed straight up and down every day would be the same. There would be twelve hours of daylight and twelve hours of darkness. This is not the case, the earth's axis is tilted. Summer days are longer and nights shorter and in winter the days are shorter and nights surface during certain times of the year than others. We call these times seasons. The difference in length of daylight causes the seasons.

There are reasons for changes in the length of day. The earth's axis is tilted and if you refer to the diagram, you will see the reason.

The earth also revolves around the sun every 365 1/4 days. This is called an earth year. Leap year accounts for the "quarter day." The earth, when it revolves around the sun, stays tilted in the same direction, always pointed toward the North Star. For this reason the North Pole is pointed toward the sun, while at other times it is tilted away from the sun.

The earth's tilt and revolution also mean that the part of the earth receiving more of the sun's energy also changes. In either hemisphere the days are longer and the nights are shorter in the summer, the opposite is true of the winter.

The times when the earth's axis is tilted to extremes have special names. The time when the poles are not tilted away from the sun is called equinox. One day a year the North Pole is tilted away from the sun more than at any other time of the year. We call this winter solstice. It generally occurs on December 21st. At this time the sun's closest and direct rays strike the earth along a line 23 1/2° south of the equator in the Southern Hemisphere. This line is called the Tropic of Capricorn. In the Northern Hemisphere, however, there would be no sunlight at all above the 23 1/2° line south of the North Pole. This area is called the Arctic Circle. After the winter solstice the days begin to get longer in the Northern Hemisphere. Around March 21st is the time of the spring equinox. During this time both hemispheres receive an equal amount of sunlight. The days begin to get longer in the Northern Hemisphere until we reach the summer solstice. This occurs around June 21st. On this day the North Pole is tilted as close to the sun as it will get. The sun's direct rays strike a line 23 1/2° north of the equator. This line is called the Tropic of Cancer. During this time the sun does not set at all in the Arctic Circle. The fall equinox occurs around September 21st and the poles are once again the same distance from the sun. Since the sun always shines and is sometimes overhead at noon between the Tropics of Cancer and Capricorn, this part of the earth is always warm. Because the tropics are heated constantly, their temperatures do not vary greatly during the year.

Climate is the resultant energy from the sun. Because the tropics are always warm, an air flow pattern develops in which the warm air rises over the equator and flows toward the poles. As it travels toward the poles it is being cooled. Cold heavier air travels from the poles to the equator and a cyclical pattern develops. The rotation of the earth causes global winds and pressure belts result from the need to exchange or balance energy.

The Greater Antilles are in the climatic belt called the low latitudes, which extends from the equator to about

30°. Trade winds are the dominate surface winds in this region and blow mostly from the east. Between the humid tropics and the tropical and subtropical deserts are the *wet and dry tropical climates* . These climates are produced by the seasonal movement of the sun's direct rays north and south of the equator. When the sun's direct rays move north of the equator, they increase temperatures in that region.

This increase of temperature shifts the area of warm, rising air northward towards the Tropic of Cancer. It also brings summer rainfall into areas north of the equator between the tropics and the desert. In the winter when the sun's direct rays move southward, warm rising air moves southward as well. A subtropical high pressure zone dominates the area and little rain falls in this region. There is a humid tropical climate pattern on this northern portion of the island of Hispaniola. This is because the northeast trade winds (cooler air) are meeting up with warm ocean currents causing heavier rainfall and because it is primarily coastal plain.

The climate of the West Indies is pleasant. Steady northeast trade winds moderate the tropical heat and humidity. The sun shines much of the year, and the islands receive 40 to 60 inches of rainfall. Crops can be grown throughout the year because of the favorable climate. The soil is fertile because of limestone and volcanic deposits. Sugar cane is the leading crop.

The Effect Of Climate On Behavior

"A sense of place is part of every person's identity and heritage, and identification with a place is part of everyone's culture. Home is a strong emotional concept, not just a building or physical site. Homeland is even more charged with passionate feelings which to outsiders, may often seem extreme or even irrational." ¹ Culture and place are linked. As people formed communities in many parts of the earth, they found the world about them to be different. The climate differed from one place to another. Plants and animals were not the same in all places. The surface of the earth was almost flat in some places and hilly or mountainous in others. Each man had to adapt to his own particular environment. When people were many miles apart they were out of touch with each other most of the time. Cultures evolved depending on the dictates of the environment. Most geographers concur that *culture* is the total way of life of a group of people. A simple definition of culture might be the life style characteristic of a specific group of people living in a particular place at a given time.

The climate, soils, landforms, and minerals in various parts of Latin America have meant something different to farmers. Each group has had a different technological base and has perceived the resource possibility differently. Latin America has productive environments in which plants and animal populations are sufficient to support hunters, gatherers, and in most places farmers. For this reason Indians were widely spread over the area at the time of Columbus. The economy of the Indian was locally based. Success or failure depended on the growing potential of the local environment as its possibilities were viewed by the local people.

The hot, wet, tropical forest were only lightly settled. Although the supply of natural food was plentiful, there were major problems. These problems were disease from the abundant insect and microbe populations, difficulties in clearing forest vegetation and maintaining fertility in tropical forest soils. The Indians were spread throughout, but preferred the highlands. The highlands were away from the problems of the humid rain forest. The lower slopes of the highlands were able to produce such crops as corn, tobacco, and bananas. Inhabitants of the tropical rain forest suffered not only from their own productive inefficiencies, but also from their inability to store the fruits of their environment effectively. The reason was that of rapid decay and animal predators. Carpenter points this out so effectively in his novel, "Explosion in the Cathedral. French

exiles are sent to Guyana to live in intolerable conditions. "There was something unpleasant and corrosive about the very sound of Maconi, Oyapoe and Approuague, which suggest swamps, a brutal fecundity, an implacable proliferation." ² Today commercial interest concerned with the development of a particular resource must weigh the potential profit against the cost of overcoming environmental obstacles. This thought leads us to a discussion of several geographic viewpoints concerning the interaction of physical and cultural environments.

One of the earliest and simplest geographic viewpoints was called Environmental Determinism. Simply put, it states that all human actions are controlled by the physical elements in the environment. Many northern Europeans believed that any corruptive behavior on the part of Latin American natives or otherwise was due to the degenerative effects of climate and terrain. Modern geographers tend to discard the Environmental Determinism theory because of the many inconsistencies, although it still has many useful concepts. With the advent of modern technology a new geographic thought emerged, the theory of Possibilism. This theory engulfs the premise that modern technology can conquer and modify man's surroundings to suit his needs.

This idea was not generally accepted due to the natural environmentalist, cost factors, and the tampering with ecological system and the resultant and often damaging effects. For every action there is a reaction—so it was with the theories of Determinism and Possibilism. A compromise theory resulted called Probabilism. Probabilism employs the concepts of both Determinism and Possibilism. It can be summarized in this way: 1) The physical environment determines a good deal of man's actions; 2) Advanced cultures can overcome environmental constraints with the use of technology; 3) If a person knows both the physical environment and the cultural traits of an area, he can put the land to its best possible use and even predict future results.

What is the prevailing geographic viewpoint today? One must realize that the roles of environment and culture are constantly changing. Environment influences behavior and behavior influences environment. Phenomena acts upon phenomena molding and changing within the culture and on the environment and this has brought upon the acculturation of what is Latin America today. Let us examine some of the phenomena that has brought about this acculturation in the Greater Antilles.

Latin American Culture

"The world will hardly look to Latin America for leadership in democracy, in organization, in business, in science, in rigid moral values. On the other hand, Latin America has something to contribute to an industrialized and mechanistic world concerning the value of the individual, the place of friendship, the use of leisure, the art of conversation, the attraction of the intellectual (life), the equality of races, the juridical basis of international life, the place of suffering and contemplation, the value of the impractical, the importance of people over things and rules." ¹

Latin American culture exists despite the great ethnic diversity among the people. In some areas native Indians dominate, particularly in Central America and in the Andes highlands from Columbia down through Peru. In Argentina, parts of Brazil, and in Venezuela, English, German and Italian roots are significant. In Guyana there are areas dominated by East Indians. In others still, such as the West Indies, African slaves are the major component of the population. It is to this area that I shall primarily address this paper. The distribution of blacks in the West Indies correlates with the areas of early sugar plantations. They account for a significant portion of the population of the Dominican Republic, Cuba, Puerto Rico, Jamaica and Haiti.

Europeans are prominent everywhere in Latin America and in Argentina, Costa Rica and Uruguay have not mixed with other groups, but elsewhere they are part of an integration that has produced people of almost every skin color.

Zimolzak and Stansfield write that most conflicts that occur in Latin America center more on class, social status and wealth. ² Blacks are concentrated on the “sugar islands” and form the majority of populations. Racial mixture is prevalent in the Spanish islands where a relaxed atmosphere toward race exists. This mixture does not exist in Haiti and Jamaica because they were settled by the French and English, who did not have the same racial attitude.

In Haiti, for example, the ruling race has changed but not the style of political rule.

October 12, 1492 the connection between the Old and the New World was established, and as Crosby writes, “a bond as significant as the Bering land bridge once had been.” ³

The discovery of the New World thoroughly jolted the Old World Christian thought on the concept of creation. Life forms were so different in the New World that theories on multiple creation were formulated. Nevertheless, the European clung to the theory of monogeneticism. European Christian thought was brought to the New World and its validity had to be maintained. The Pope’s Grant of 1493 ... granted Spain ‘all islands and mainlands found and to be found, discovered and to be discovered’, the Requirements of 1512 that allowed the Indians to be subjugated and subsequently slaughtered, would have no meaning if all life hadn’t developed in the manner of Christian thought. Everyone had to be a descendant of Adam and Eve and therefore, subject to the Pope. And so with the book of Genesis set comfortably in place, the white settlers began their domination and subjugation of the New World.

To understand how the Indian was so easily dominated one has to know the history of the Indians. Some tens of thousands of years ago a migratory group of Indians crossed the Bering land bridge and crossed into America. Their procreation to high numbers from only a small band of people is a simple mathematical exercise. A small percentage in increase could have generated a population in the millions within a time span of approximately 10,000 years. Geologists tell us that the Bering land bridge has submerged and risen several times during the earth’s history and has submerged since this migration. Once here, the Indian was isolated. This isolation hampered the growth of their civilization and made them extremely susceptible to the diseases of the rest of mankind. Migrating through the cold of the high latitudes had a twofold effect. One, the severe climate killed off the weaker of the group and two, it strained many of the germs that could be spread among the group. They were alone for many centuries doing their thing. Then they came in contact with their apocalyptic man ... Columbus. The reason why so many Indians were conquered by so few Europeans was the spread of smallpox and other maladies to the very susceptible Indian.

The European had many other advantages but smallpox was the most debilitating. Once the Columbus phenomena had occurred, the land was open for conquest and change. The Indian became subjugated. Old World ideas were super-imposed upon the New World.

What about the invaders, the Indian’s mythological ‘White Gods’ who came to the New World to spread their religion and culture? They were called conquistadors. It was written, “the Spaniards learned to keep time in its place and the conception that life is worth living for its own sake” and that the “Spaniards sense of personal dignity that finds itself ill at ease with impersonal authority; and the rejection of rational criteria and especially the cult of progress.” ⁴ These were some of the characteristics of the Spaniards who went to live in the New

World.

The conquistadors were adventuresome men greedy for gold and fame. They were restless men, enduring and resourceful. Some were aristocratic, while others were peasants; and most had a fanatical desire to subdue the infidels. They were men of urban instincts for as soon as they landed they founded cities even if it consisted of only a few huts. These conquistadors were forerunners of the caudillos, who inherited the Spaniards individualism, their pride and their passion and their contempt for death. "Sooner or later personal issues are reduced to personalities, thereby becoming comprehensible. Personalism is the general rule today, as it was during the conquest." ⁵

The Spaniards came to conquer and dominate and, unlike the English in North America, did not come to colonize. They came to the New World without women and mixed with the native women who bore their children. This circumstance formed the basis for the relaxed Spanish attitude toward race. As Pendle writes that the Spanish were influenced by the Moslems and the intermarriage between the Spanish and the Moslems formed the basis for a relaxed Spanish attitude toward race. The Spaniards came to conquer and dominate and, unlike the English in North America, did not come to colonize. They came to the New World without women and because of this relaxed attitude were able to mix with the native women who bore their children. As for the Portuguese, the proximity of Africa tended to modify the Portuguese's attitude toward the heavy Germanic code. ⁶

The horse, next to disease, was probably the single most advantage over the Indian in warfare. The animals prospered and certainly helped change the culture of the New World. The flora of the Old World did not impress the Indians as much as the fauna, but it nonetheless changed the style of living in the New World. As plantation type of crops began to flourish, black slaves were brought in from Africa. Sugar cane began to take hold in the Antilles and required a great deal of cheap labor to make it profitable. Sugar was a commodity known only to the wealthy of Europe. The demand for sugar in Europe exceeded that of any other commodity produced in the Americas. As cheap labor became more difficult to get, especially since the native Indian population was on the decline, black slaves were brought in to replace them. This phenomena changed the entire demography of the Antilles.

The source of early migrations came from Africa and not from Europe as one predisposes. The Europeans were not willing to fill the void of labor created by the declining aborigines of the New World. To fill this gap the white immigrants turned to Africa and literally stole a labor force to work as slaves in the New World. According to Crosby, almost 90 percent of the slaves brought to the New World were sent to the tropical regions. Of this amount 42 percent were brought to the Greater Antilles. The total number amounts to about 10.5 million. ⁷ After the great influx of black slaves the greatest migration then came from Europe.

Dr. Guerra's book states, "basic to the relationship between men and land, then, is the relative availability of land for settlement and labor for employment." ⁸ Labor must strike a balance with opportunity. Since the plantations in the Greater Antilles had no access to labor, they had to resort to slave labor. The plantation had a difficult time trying to survive early on because of the loss of population, loss of imperial interest and arbitrary mercantilist policies of the Crown. During this time of tranquillity (amidst war and plunder) Cuba took on a different and distinct identity. This is when the growth of unstratified societies began, extremely liberal slave codes and the easement of color biases. Eventually the plantation took hold and here began the establishment of great families, the spread of culture and all the other amenities that wealth brings to a very few. The plantation was built on Indian land and slave labor.

Dr. Guerra coined the word “latifundium”⁹ which means, “the large, corporation-owned land and factory sugar combine” and according to Guerra this latifundium is the basis for the severe economic conditions of the Greater Antilles today. Because the concept was not so much to colonize, but to extract from the Americas as much wealth as could be had, the Greater Antilles became a one crop economy region. Cuba was spared this disaster for close to two centuries, for the Crown considered Cuba to be an unproductive island. Conscientious administering of land grants, the abundance of land and a meager population made it possible for Cuba to develop a healthy cattle industry mixed with agriculture. Cuba had struck a good balance with the land and a productive, if not wealthy, atmosphere flourished.

Two occurrences caused the Cuban growth to come to an end in the eighteenth century; the English industrial revolution 1750-1760 and the French Revolution of 1789. Guerra writes that the capture of Havana by the English in 1762 for a few brief months, the easing of Spanish trade restrictions on Cuba during the reign of Charles III, increased communication between Cuba and Spain, the creation of a great free market near Cuba and the destruction of Haiti’s sugar and coffee wealth ... a consequence of the French Revolution, drew Cuba out of isolation.¹⁰

While the English occupied Havana, Cuba was flooded with African slaves to promote the sugar industry. As happened already to the rest of the Antilles, Cuba was drawn slowly into the latifundium.

Oligarchy ... a government of the few for the few, was to be the fate of the Greater Antilles. Wealth from outside the country financing the latifundium for its own personal gain at the expense of the common welfare of the native.

Dr. Guerra’s succinct description of the latifundium in the Barbados is a good example of the cycle of events that occurred in the Antilles.¹⁰

Barbados is an island of approximately 166 square miles and colonized in 1627. “In 1628 Barbados had 1400 inhabitants all from England. In 1636, 6000 people and in 1643, 37,000 people all from England, the highest number of inhabitants in its history.”¹¹ It had a good balance of products. The majority of the population consisted of indentured servants. When their contract expired, they were given a piece of land and became independent farmers. By the early 1640’s it became one of the most prosperous colonies. Sugar was introduced into the Barbados and by improving techniques of milling, by 1666 the wealth of Barbados had increased seventeen fold. When competition became keener profits decreased, when profits decreased other means had to be employed to keep the cost of production down and maintain a profit. Small landowners dwindled until the latifundium swallowed all the available land. Negro slaves in great numbers were brought from Africa. An unending cycle developed and fed upon itself until the entire economic structure of the West Indies was weakened.

A revolution has occurred in Cuba to hopefully change this condition, and whether it will or not is not for this paper to judge. As for the rest of the Antilles, slavery is dead but the misery of the former slaves lives on. The Greater Antilles is not the dynamic economic region it might have been. Greed and cruelty have taken their toll and poverty and misery is prevalent everywhere.

Lesson #1

Goal To teach location by using longitude and latitude.

1. To use direction.
2. To be able to measure to the minute longitude and latitude of a place.
3. To be able to select a body of land and determine its location.

Materials World maps, regional maps, local engineers map (7 1/2° map of New Haven), ruler, compass.

Procedure

1. Determine a location on a world map by using the longitude and latitude lines.
2. Have students read the longitudinal location—E and W reference the Prime Meridian in Greenwich, England.
3. Have students determine location of latitude by using the equator as the reference.
4. Have students determine the hemispheres a body of land through location.
To use a 7 1/2° map of New Haven to be able to determine the exact location, to the second,
5. of any particular site in New Haven, by using a ruler and dividing the degrees in minutes and seconds.
6. To be able to approximate time zones by using every 15° of longitudinal change to represent 1 hr.

Lesson #2

Goal Once a location has been determined to approximate its climate.

Materials World map, text book to be used as reference to reinforce answers.

Procedure

1. Determine the latitude primarily of a region to be studied.
2. Have students use the equator and the poles as reference points.
3. Determine if the region is in the lower latitude or the higher latitude.
4. Once this has been established have students tell if the climate is expected to be hot, cold or temperate.

5. Establish where any bodies of water are, if there are mountains, high plains, etc. as this will have some bearing on the general climate.
6. Have students develop a simple type of behavior from the geography of the land.

Lesson #3

Goal Draw an arbitrary region and be able to choose the best possible site for cities, harbors, industries, etc.

Goal Draw an arbitrary location and be able to choose the best possible sites for cities, harbors, industries, etc. as given by the geographic conditions.

Materials Art paper, crayons, rulers, compass.

Procedure

1. Determine the longitude and latitude of the arbitrary region.
2. Determine the type of climate because of its location.
3. Have students draw in bodies of water, mountains (if they so choose) to establish a climate pattern.
4. Have students clearly state direction of wind in the location of region and direction of mountains as this might determine precipitation.
5. Have students discuss the type of society that might develop from the geographic conditions they've drawn.

Sample Lesson #4

Goal

1. To build a 3D map of the Greater Antilles.
2. To be able to give its exact coordinates—each one of the islands.
3. Be able to explain the type of climates.
4. Know the chief products of the islands using the prose of this unit.
5. To understand in a primary way the culture of the inhabitants of these islands.

Materials 4' x 8' sheets of plywood—newspaper, paper mache glue, topography map of the region and political map.

Procedure

1. Draw a map of the Greater Antilles Region on the 4'x8' sheet.
2. Construct the topography of the region, copy from a topography map, i.e. mountains, lakes, rivers, etc.
3. Identify outstanding features and pinpoint with flags.
4. Number flags and make corresponding 3x5 cards with pertinent data information.

Notes

1. Zimolzak, Chester E. and Charles A. Stansfield, Jr. "The Human Landscape" Columbus, Ohio, The Charles Merrill Publishing Co. 1979, p. 1.
2. Carpentier, Alejo "Explosions In A Cathedral" New York, Harper & Row Publishers, 1979, p. 213.
3. Pendle, George "A History of Latin America" New York, Penguin Books, 1963, p. 225.
4. Zimolzak, Chester E. and Charles A. Stansfield, Jr. "The Human Landscape" Columbus, Ohio, The Charles Merrill Publishing Co. 1979, p. 15.
5. Crosby, Alfred W. Jr. "The Columbian Exchange" Westport, Connecticut, Greenwood Publishing Co. 1972, p. 3.
6. Pendle, George "A History of Latin America" New York, Penguin Books, 1963, p. 28.
7. Ibid, p. 47.
8. Ibid, p. 28.
9. Crosby, op. cit., p. 213.
10. Guerra, Ramiro Y. Sanchez "Sugar and Society in the Caribbean" New Haven and London, Yale University Publishers, 1964, p. XIV, foreward by Sidney W. Mintz.
11. Ibid, p. 211, Glossary.
12. Ibid, p. 44-45.
13. Ibid, p. 9.
14. Ibid, p. 10.

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