

**AN INVESTIGATION OF THE TRANSPORTATION
PATTERN AND ITS ROLE IN THE ECONOMIC
DEVELOPMENT IN A SELECTED AREA OF
WESTERN AFRICA: A COMPARATIVE SURVEY
OF THE REPUBLIC OF GUINEA AND THE
REPUBLIC OF IVORY COAST.**

by

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Submitted to the Department of
Economics and to the Faculty of
the Graduate School of the Uni-
versity of Kansas in partial ful-
fillment of the requirements for
the degree of Master of Arts in
Economics.

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For the Department

June 1960

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INTRODUCTION

The idea of this study was suggested to me by the conjunction of three elements: The vital importance of the problems of economic development; the recent awakening of Africa, which draws the attention of the new nations emerging on this continent; and my personal interest in questions of transport.

It is often assumed that the lack of reliable transport is one of the main obstacles to economic development; the author wanted to investigate through practical examples, how much this development is related to available transport, and to what extent the improvement of the transportation pattern induces the economic growth of a country.

The purpose of this study, therefore, is to survey the transportation pattern of two countries in West Africa: The republic of Guinea, and the republic of Ivory Coast; and to investigate its role in their economic growth.

The author of this paper understands the terms, economic growth, or economic development, in the broad sense, and has adopted the position of the co-authors¹ of A Proposal, that "once societies are stirred from the lethargy of traditional economic stagnation, their transition to mature, self-sustained growth can be divided into three stages:"

1. Establishing the preconditions for growth.
2. The take off.
3. Self sustained growth.

¹Millikan & Rostow, A Proposal. Key to an Effective Foreign Policy. New York, Harper, 1957. p. 49

In this survey, the author will investigate mostly how important the role of transportation has been in establishing the preconditions for growth, and to what extent the countries are entering the second stage, when "the forces for economic progress, which up to now have yielded limited bursts of activity, shall expand and become decisive factors."

According to these authors, the main features of the first stage are:

- a. The idea spreads that economic progress is possible.
- b. Education, for some at least, widens and changes to suit the needs of modern economic activity.
- c. Enterprise men emerge willing to mobilize savings and to take risks in the pursuit of profit.
- d. Institutions for mobilizing capital appear.
- e. Basic capital is expanded, notably in transport, communications and products such as raw materials which can be sold in export trade.
- f. The orbit of commerce, internal and external, widens.
- g. Here and there, manufacturing enterprises are started.

The above will provide the background for the survey, and will allow us to speak of economic development, although its main aspect is not industrialization, but a substantial increase in exports and imports, the development of commercial activities, and the progressive establishment of a market economy, in those two countries.

Both countries are French speaking, and were member territories of the former French West African Federation. The author has chosen French speaking countries, because

very little is known about them in English speaking countries and, because, as a former part of a federation, they are almost completely unknown as individual nations.

The writer chose two countries because it seemed that a comparative study could be more fruitful than the survey of a single territory. Those countries are sufficiently similar to allow a comparison, and sufficiently different to make it significant.

Both are among the richest countries in West Africa, but their development is quite recent and has occurred at the same time as important investments were realized, mostly in the field of transportation.

The great potential of these countries, especially that of Ivory Coast, has been known for a long time. Their isolation and the obstacles of the surface features or the climate prevented the establishment of an efficient system of cheap transportation. It is only in recent years that the main obstacles were overcome and a great boom started.

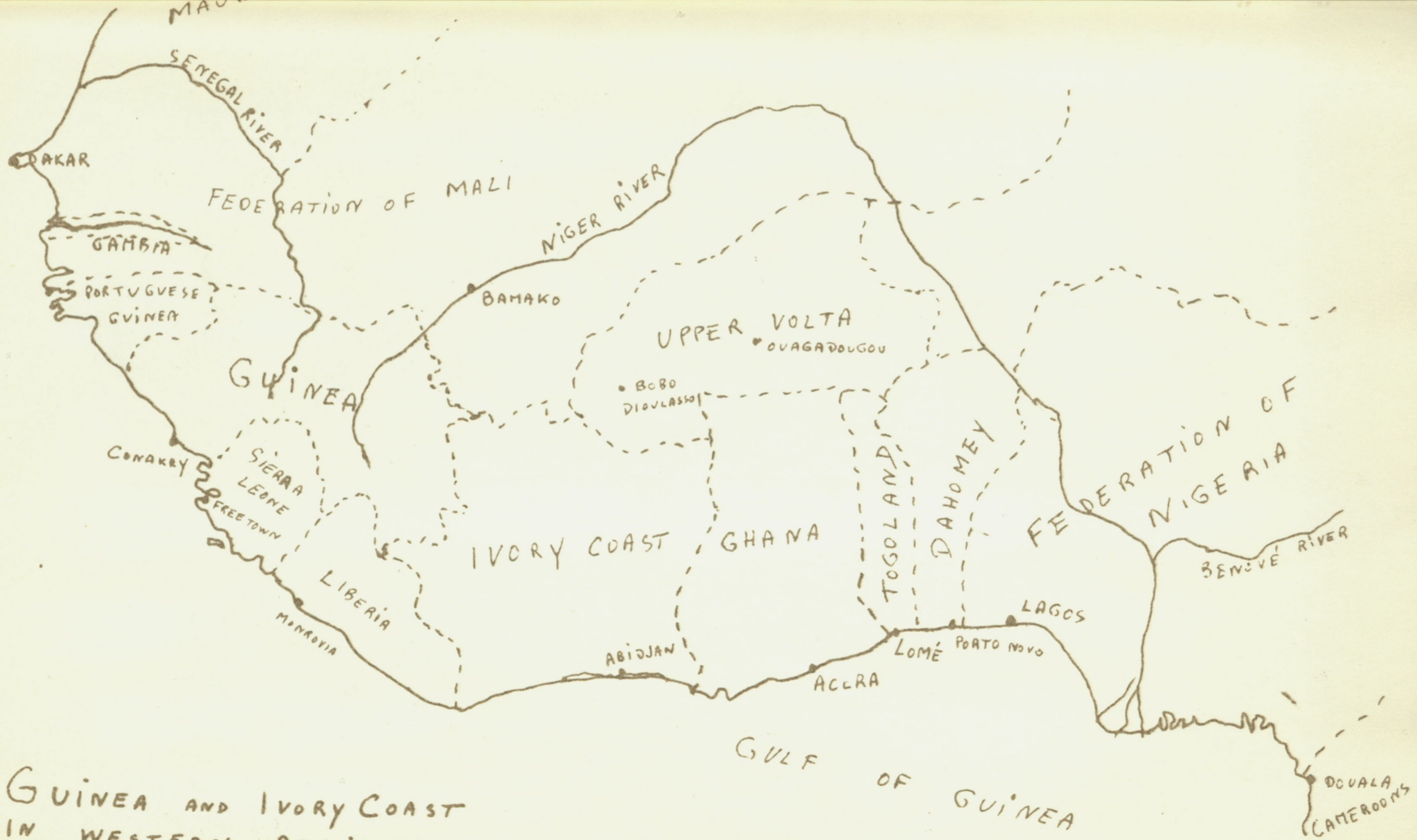
The economic life of both countries relies heavily upon the exportation of primary products, mostly agricultural commodities, but also, in Guinea, minerals. The competition on foreign markets for the sale of such products is acute, and the costs of transport will be a major factor in determining their ability to compete with other countries' products.

This investigation will be divided into three parts. The first three chapters will concern the general background:

physical geographical features, the political economic and social conditions, and the early developments of the transportation system.

The following chapters will deal with each of the specific means of transport: Railroads, roads, waterways, sea transport, and air transport.

The last part will deal with the general problems of transport and their place in the life of the countries: Investments, transportation and economic development and transportation policy.



GUINEA AND IVORY COAST
IN WESTERN AFRICA.

AFTER A MAP DRAWN BY THE NATIONAL GEOGRAPHIC SOCIETY.
SCALE: 189.4 miles TO THE INCH.

FIGURE 1

GUINEA

AFTER HARRISON CHURCH. WEST AFRICA. P.



FIGURE 2

CHAPTER I

Physical Geographical Features:

Climate, Vegetation, Relief, Coastlines, Rivers.

A. Surface Features.

Western Africa as a region has the physical structure of a rather flat country. However, a discontinuous mountain range runs from northwest to southeast at a short distance from the coast from The Futta Jallon Mountains to the Cameroon volcanoes. While Guinea gets the major part of the Futta Jallon chain, and has a significant part of its territory lying above 3,000 feet, the Ivory Coast is situated in the break in this mountainous costal range, and consequently is mostly a low-lying plain with "rocky islands" dotted here and there as a reminder of the old times when erosion had not levelled the land so much.

1. Guinea. From the viewpoint of structure and configuration, Guinea may be divided into four main parts:
 - a. Lower Guinea, along the sea coast.
 - b. The plateaux and mountains of the Futta Jallon, which are rather dry and healthy in the northern part.
 - c. The southeast corner: Guinea Highlands is covered by a rain forest similar to that which is found in neighboring Liberia and the Ivory Coast. In the very southeast, where the Ivory Coast, Liberia, and Guinea borders meet, is found the culminating point of the Futta Jallon mountains: Mount Nimba, which is 5,800 feet.

d. The northern Niger Plain.

As Fitzgerald says, "Though very close to the Atlantic seaboard in French Guinea, Sierra Leone and Liberia, the Futta Jallon is easily the most important geographic "divide" in West Africa."¹ Down its much-dissected, inward facing slope, flow head streams of the Senegal and Niger, which, merging into the two main streams of these systems, meander circuitously to the Atlantic, through indirectly opposite directions to each other.

The Atlantic slopes of the Futta Jallon are more abrupt, and on this side, many short but vigorous streams, fed by torrential summer rains, are steadily cutting back escarpments.

It is of note that the prominence of this mountainous part of Africa is not due to up-raising along a fault line, but to weathering and stream erosions which have degraded the country around the more resistant slopes.

That is the reason why the Guinean Futta Jallon plateau is divided into two parts by a deep, profound valley, running north and south which is five to fifteen miles broad, and where the maximum altitude is less than one thousand feet. Between more abrupt chains, there is height of up to four or five thousand feet.

¹Fitzgerald in "Africa". "A social, economical and Political Geography of its Major Regions". New York; Dutton; 1952, p. 19.

The existence of this north-south valley, constituting a natural prolongation of the low coastal plain, explains much of the actual Guinean life, especially when transportation is considered.

Because of rather recent changes in the geographical structure of that part of western Africa, the actual main Guinean rivers, and especially the Konkoure River, do not follow the lines of the old slopes. They flow westward, crossing valleys of former rivers which are now dry. This very special physical feature will contribute much in adding difficulties to the establishment of areas of communications. It is easy to understand therefore, why the Konkoure River, (young river) is cut frequently by rapids and is not suitable for navigation.

As we have already noted, the Lower Guinean coastal belt, fifty miles across, extends into and beyond the Futa Jallon mountains to the middle of the country.

2. The Ivory Coast. Much simpler from the viewpoint of surface features, is the Ivory Coast. As a break in the Western Sudanese Plateau, it is a low country, mostly situated below 15 thousand feet. It is a vast plain with a slight slope, southbound toward the Atlantic coast. In some places are found "rocky islands" which are not of great importance in the general picture of the physical features. The nature of the relief does not permit the existence of big rivers. Ivory Coast rivers have not succeeded in cutting

any delimited valleys. Despite the heavy rainfalls, they are rather inconsistent creeks because the country is too flat and the rivers do not originate in mountains. The creeks are either cut by rapids when there is a "rocky island", or expanding in broad swamps among the forest. Instead of being natural ways of penetration, they have been, and still are, obstacles to such a penetration.

B. The Coast Line.

As a whole, the coasts of western Africa are generally unfavorable for navigation and the establishment of ports. However, the situation is more satisfactory in Guinea. Here you will find some natural anchorages, (more than can be said for the Ivory Coast) but as Fitzgerald says:

There are "...no first-class natural harbors between Freetown (Sierra Leone) and the Niger delta."²

1. Guinea. The total coast line of Guinea is about 170 miles from Portugese Guinea to Sierra Leone. Many sandy rivers are found along this coast line which are not navigable more than a few miles inland. Also, sand-bars are deposited almost everywhere along these rivers.

2. The Ivory Coast has a total coast line of about 350 miles, and is quite similar to that of Guinea. "...along the 300 miles of the Ivory Coast, there is no natural shelter

²Fitzgerald. Op. Cit. p. 12

for shipping--sand bars backed by lagoons extend continuously and render inshore navigation extremely precarious."³

For shippers, the African coast is made still more difficult by the existence of surf, rolling waves breaking on them from a hundred yards offshore. This particular feature has prevented easy landings for a long time, and has made necessary the costly construction of long piers, so that ships could be unloaded directly from the coast, or lighters be utilized.

C. Climate.

Both Guinea and the Ivory Coast have a so-called Tropical climate, the main characteristics of which are an almost consistently high temperature, heavy average rainfall, with one or two rainy seasons. However, there are important differences between the two countries, due to the different altitude and latitude.

1. Guinea. Although it is a part of the "Sudanese" region, the Guinean climate is closer to that of one of its neighbors, Liberia, or the Ivory Coast, rather than that of Senegal or Niger. As a consequence of the physical features, one can contrast the wet and warm climate of the coastal plain to the drier and cooler climate of the Fouta Jallon and Guinean highlands.

³Fitzgerald. Op. Cit. p. 351

The rainfall in Conakry and in the coastal plain averages 150-inches, and it is estimated that more than the half of the low country experiences a rainfall of over 55 inches. The monsoon period brings heavy precipitation during a single rainy season, extending from March to October. A short winter period, with dry northeast winds, replaces the normal rain-bearing winds from the southwest.

The average temperature for the year is almost constant, and nowhere is there a monthly mean lower than 70 degrees fahrenheit. On the other hand, in the Futta Jallon plateau, the rainy season is much shorter, and the average precipitations are down to 40 to 50-inches. Further in the northern part of the Guinea we find a "Southern Savanna" climate, with a rainy season of eight months, from April to November, and wider temperature ranges.

2. The Ivory Coast, is situated in that part of Western Africa where, for various reasons, rainfalls are not as heavy as in other equatorial regions. However, the average precipitations are still high. An average of from 100 inches along the seashore belt, to about 60 inches for the inland, and due to the proximity of the Equator, there is no really dry season. Two less-rainy seasons are quoted by geographers; they are: December to January, and July to August.

D. Vegetation.

"In the central zone of Africa, the soils as a whole are more uniform in character than in the case of many

regions of similar size, with the possible exception of the Sahara. They tend to be light in texture, often sandy, and reddish in color; while the sub-soil is usually of a much heavier, frequently clay nature."⁴

1. Guinea. Most of Guinean territory is situated in the "Sudan vegetation region", land of savanna and tall grass, where big trees are rare. Trees are more numerous near the coast and in the southern plain where palm trees and banana trees are found in great quantity.

Grass dominates in the Futta-Jallon plateau, cattle raising is the main activity, and some authors (Gautier,⁵ and Du Jonchay⁶) see this region as one of "ranching possibilities" comparable to the great stock industry of the Argentina pampa and the Australian downs.

The southeast corner is one of dense rainforest, similar to that found in Liberia or Ivory Coast. Because of the rainfall, the possibilities for crops are the same as those of the equatorial region: Coffee, cocoa, and rubber.

2. Ivory Coast. The almost constant average rainfall makes Ivory Coast a land of heavy, luxuriant rainforest. As far as two or three-hundred miles inland, the land is covered by a forest which is particularly rich in cabinet woods and

⁴Dewent Whittlesey; Africa in the Modern World; Edited by Calvin Stillman. University of Chicago Press, 1955. p.39.

⁵Gautier - F². L'Afrique Noire Occidentale; Paris LaRose 1943. p. 155

⁶Du Jonchay, Y. L'Industrialisation de L'Afrique Noire. Paris Payot; 1954. p. 191

has abundant resources of tropical products; Cocoa, coffee, bananas, palm oil and pineapples.

The remaining part of Ivory Coast is a "Big Bush", relatively poor susistence crop and cattle country.

A very particular feature of the vegetation for Ivory Coast is that the almost impenetrable rainforest is distributed on either side of the country, close to the Liberian and Ghanean borders. For the central part of the country the belt of the rainforest is reduced to a strip of less than 80 miles wide, thus presenting a gateway between the coast line and the inland grass lands.

CHAPTER II

The Economic, Social and Political Background.

Population, political statute and economics.

A. Population.

Africa as a whole is an area of sparse settlement, due to the importance of an unfavorable climate and vegetation and the many wars of extermination, or the "production" of slaves.

Against the general pattern, Western Africa appears as a highly populated area with a population density reading over 65 persons per square mile, (in such places as the Niger mouth, Ghana Coast, Sierra Leone). But within the two countries considered, density as well as racial groups vary greatly.

1. Guinea. With an area of 94,925 square miles, Guinea has a total population of 2,650,000 inhabitants, according to an estimate given in 1958, which means, an average density of 25 inhabitants per square mile. The distribution is uneven, the most densely populated area is between the central South and the South Eastern, while the Western border as well as the Northeast average under 12 inhabitants per square mile.

For a long time, the non-negroes, cattle raisers of the Fatta-Jallon plateau, the Feuhls or Fulla, dominated the country which they had invaded from the North. Established

in the central part of Guinea, they number about 1,200,000, or nearly one-half of the population, and still play a dominant role in the political and economic life of the country. The fact that cattle raising was the main activity prevented the growth of any important city in the region, though they achieved a degree of civilization.

The other main groups are the Malenke, (700 thousand), in the eastern part of the country, and the Soussou (500 thousand), living in lower Guinea, along the coast. Although statistics are very difficult to obtain in such a country, Guinea has one of the highest birth rates in the world. Six percent in the country, and four and one-half percent in Conakry; the death rate, although high, is far below that figure, and therefore the population increases quite rapidly, (at least three percent per year) one of the highest rates of increase in the world. Definitely so for western Africa.

The European population in 1957 was close to 10 thousand, mostly French, chiefly located in Conakry. It must be considered that this long-time "white-man's grave" has never had a heavy European settlement. Although it is possible for Europeans to live theretoday, there is no "white settler" problem in Guinea as there is in some other African countries. The existence of important Syrian and Lebanese minorities engaged in the wholesale and retail trade must also be considered since there is strong African resentment at being exploited by foreign merchants.

Most Guinean, (about 80 percent) are moslems.

2. Ivory Coast. The importance of the rain forest and the absence of a healthy highland's climate has made the existence of a dense pattern of settlement impossible. For a total area of 124,503 square miles, Ivory Coast has a population, estimated in 1957, as 2,607,000. This figure is very similar to that of Guinea, which has an area of only 95 thousand square miles. Consequently the population density is quite low; about 20 per square mile. The nature of the climate and of the vegetation has never permitted the growth and development of systemised political units such as those found in Western Sudan (Mali), Ghana, Nigeria, Dahomey or even the Peuhl kingdom of the Guinean Fouta-Jallon, in this part of Western Africa. Settlements were small in the deep forests where backward tribes had a rather miserable life. In the northern area, natives were dominated by neighboring tribes. Thus, no civilization of importance, and no urban civilization of any type developed in this area.

As in Guinea, Europeans are not a problem by their number. A December, 1956 estimate numbered them as 11,638, of which two-thirds were living in Abidjan. Most of them were French. The settlement pattern in Ivory Coast is even more unevenly distributed than in Guinea. A strip from the Guinean border to the central part of the coastline (where, we have seen, there is a break in the rain forest) and an area along the central part of the north border are the two main "dense areas." Most of the rain forests' western part

and the eastern part of the country have a very sparse population. (Less than 12 persons per square mile.)

Many Guineans, prior to the introduction of industrialization in Guinea, emigrated to Dakar or to other regions of French West Africa. Ivory Coast, on the other hand "imports" workers from the Upper Volta and Niger regions for labor in industry and on the plantations. This inflow of "de-tribalized" men from the inland region of Africa was a major factor in the growth of Abidjan and from it arise many social and even political problems for the country.

B. Political Statute.

Both countries were part of the Federation formed in 1904 from the various French territories of Western Africa, which was known as A.O.F.¹, or French West Africa.

French penetration in Guinea was relatively easy, it started in 1866 from the north. Boundaries of French influenced were delimited after the Berlin conference of 1884-1885, and the occupation completed in 1898.

Much slower was the penetration in Ivory Coast, although it was one of the territories of the Federation when it was founded in 1904. As late as 1924, a revolt of the forest tribes shook the colony.

Both territories are artificially bounded units, especially Ivory Coast, with frontiers determined either by

¹A.O.F. Abbr. for: Afrique Occidentale Francaise.

administrative convenience or by contacts with rival colonial penetration. Ethnic groups are identical on both sides of the selected frontiers, and racial inter-territorial solidarity was much more significant than "territorial" unity for years. It is only recently that a national feeling has been born, leading to a completely new political situation.

Before the second World War, the French colonial policy emphasized direct French rule through the Federal organization. Very little importance was given to each territory as a specific entity, and metropolitan interests always outweighed local African interests. The first sign of a change in this colonial policy was shown by the Brazzaville speech of General de Gaulle in 1944. General de Gaulle formulated the basic principle of a broader, looser, and more liberal French Union to be established by the French Constitution of 1946. The various territories of French Western Africa remained a federal unit; although they were represented on the French assembly. Then, in 1956, the threat of growing nationalism led the French government to provide for a progressive increase in local governments' powers.

In September 1958, a new concept, The French Community, was proposed to African voters. The Western African Federation went out of existence and each territory had the choice between three political organizations:

1. The maintenance of the status quo, a dependant territory, part of the French Republic.

2. To be an autonomous state, associated with France within the framework of a "Community". In both cases, they were to vote "yes" and get the actual legislation later on.

The third solution was secession, which meant complete and immediate independence. If the latter was chosen, they had to vote "no". Seven out of the eight countries which were members of the Federation voted "yes" in approval of the new constitution, with clear majorities.

Guinea, voted an impressive "no" (98 percent), mainly because of the position of trade unionist Sekou Toure, as "strong man". Thus, it was the sole member to drop out at this time and therefore became the third independent negro state in Africa.

Ivory Coast, however, under the leadership of Dr. Houphouet Boigny, (several times a minister in the French Cabinet) gave an impressive "yes" (99 percent), with an electoral participation of 98 percent.

As a result, Ivory Coast government now deals with all internal affairs. The French are in charge of international relations, the Army and the money. It is to get more and more autonomy. Finally, "independence without secession" will come within a short period of time.

We may consider therefore, that both countries have the possibility of formulating their own policies in the field of economics and transportation. Ivory Coast has, (as much as Guinea) the powers of a sovereign state in these two fields under consideration.

C. Economics.

We intend to give only a very brief survey here of the main economic features of Guinea and Ivory Coast.

Both countries belong to the agricultural fringe of Western Africa which is particularly fitted for "tropical foodstuffs" production, for which there is an increasing demand on the western markets. They were the two richest territories of the former French Western Africa; and with Ghana, they are the richest countries in all West Africa. Both countries have mineral resources, especially Guinea, where production is now starting. Lastly, prospects of industrialization are particularly bright in Guinea because of the existence of river which can provide cheap electric power.

1. Guinea. The main agricultural products for export are "tropical foodstuffs" which are mainly shipped to France, and are of rather high value. Coffee, which was not even mentioned as an important product in 1951 is now the most valuable export. This has come about due to the opening of the Guinean Highlands by the construction of several roads.

Bananas have been the major export for a long time. Grown in the coastal fringe and in the valleys near the railroad, they still account for the bulk of the tonnage of the agricultural exports.

Palm kernels, produced on the coast, are third in value among exports.

Citrus fruits in the Futta-Jallon mountains, and pineapples on the coast are produced in increasing quantities.

Two important minerals are found in appreciable quantity: Iron ore, found in the Kaloum Peninsula, near Conakry; and bauxite, found in various places. The local fabrication of alumina and aluminum begins in the southern Futta-Jallon. Bauxite is directly exported from the Los islands, also near Conakry.

The cattle raising industry on the Futta-Jallon plateau is of great importance for the economy of the country, as there are substantial exports to neighboring countries. However, the social function of cattle, (the symbol of wealth and dignity, rather than a commercial investment) slows down the importance of this venture. Due to the geographical conditions, this could be a very flourishing activity providing there is a change in custom.

The 1958 figures for exports show the relative importance of the various products in the economy of Guinea.²

<u>Total Exports:</u>	4,875 million	Coast of French Africa (CFA) francs
<u>Green coffee</u>	10,264 metric tons	1,748 million CFA francs
<u>Bananas</u>	64,908 " "	1,057 " "" "
<u>Palm Kernels</u>	19,667 " "	502 " "" "
<u>Bauxite</u>	263,667 " "	337 " "" "
<u>Iron Ore</u>	333,821 " "	244 " "" "

²Sources: The Americana, 1960. \$1 = Frs CFA 250;

F₂ CFA 1 = French Frs 2

Other exports consisted of cattle, diamonds, gold, orange essence, pineapples and other products in small quantities.

The approximate figure for the cattle of the Futtajallon is 950 thousand heads, and about 100 thousand are slaughtered per year.

2. Ivory Coast. This is mainly a rich agricultural country with big European plantations as well as small native fields. The richest areas are found in the southern forest land where the areas can be cleared.

Coffee is by far the most valuable export. It was introduced in the 1910's . After a decline during the second World War, the production has increased very much and stayed at a high level during the past years.

Cocoa is the second major export, The production is likely to increase in the future, (the present figures reflect the consequences of the war crisis which led to a diminution in the acreages and in the number of trees.) As it takes seven to eight years for a tree to produce, the new trees planted after 1948 are just starting to produce.

Timber and hardwoods are the third in value, and the first in tonnage of Ivory Coast's exports. The production has considerably increased during the past years as a consequence of the improvement of the waterway system of the southern forest belt.

Bananas have been grown in small quantity for a long time, but the production for export shows a considerable

increase in the recent years. The 1958 figure is more than twice that of the 1954 figure.

For 1958, the importance of those products in the total exports were as follows:³

<u>Total Exports:</u>	31,492 million of CFA Francs						
<u>Green coffee</u>	112,505	metric	tons	18,780	million	CFA	francs
<u>Cocoa beans</u>	46,333	"	"	6,415	"	""	"
<u>Hardwoods</u>	402,178	"	"	3,316	"	""	"
<u>Bananas</u>	46,129	"	"	1,274	"	""	"

Other exports of Ivory Coast are, pineapples, palm kernels and palm oil, and diamonds. So far, no important mineral deposits, except gold and diamonds, have been found.

³Ibid.

CHAPTER III

The Early Development of Transportation

The early European interest in West Africa was in conjunction with other tropical areas. The ports on the West African coast were utilized as call points on the way to India and the far-East.

Of greater significance, West Africa was a source of slaves for the American plantations. To facilitate the trade, contact "forts" were established on the coast of Guinea. None of the European powers made important efforts to control the inland before the end of the nineteenth century.

All trade was limited because of the complete lack of adequate transport. "Indigeneous Africans had never evolved the use of the wheel and were singularly slow to adopt it when they saw others employ it."¹ Moreover, the area under survey is largely infested by Tse-Tse fly, and domestic animals could not, as a rule, survive. Porterage, the carrying of goods by using man as an animal of burden, was therefore used for carrying exports to the coast and carrying back imports. Porterage was a social evil, a political danger, and an economic waste.² Tonnages were extremely limited and only high-value goods were exported, such as gold and ivory.

¹Hailey. An African Survey. London, Oxford University Press. Rev. 1956. p. 1537.

²Harrison Church. West Africa. London; Longmans-Green 1957. p. 153.

At the end of the nineteenth century, interest arose among European nations about western African territories, and at the Berlin Conference of 1884-1885, colonial areas were distributed to various European nations.

The French, at that time, occupied some trading points on the Guinean gulf and they were given the hinterland which forms today's Guinea and Ivory Coast. It was held at the Berlin Conference that a title to territory could be sustained only by effective occupancy.³ Therefore, to maintain their claim, a stimulus was given to transportation construction, so that they had nominal control over the territory.

However, many difficulties hindered this development. Some of them could not be overcome until substantial technical progress had been achieved.

A. Lack of Information and Geographical Knowledge of the Areas, were among the difficulties the French were faced with. They also faced the task of establishing communications in an almost unknown country, as rapidly as possible. Aerial surveys were unknown, so progress was slow toward the mountains of Guinea. Still more difficult was the advance in the deep forest of Ivory Coast and the coastal belt. Very often it was almost impossible to know how or what the best route would be, where to build bridges, and even where to go. As there were very few significant cities, the problem arose to choose starting points for the railroads to

³Hailey. Op. Cit. p. 1537

penetrate. Since the bulk of the exploiting work was done by the army, militarily strategic routes were chosen for the railroads. The complicated geographical features of the Futta-Jallon plateau, while very exciting for a professional geographer, was a headache for the military engineers who had to cross those mountains in order to reach the Sudanese hinterland. Problems were still more difficult in the swampy rain-forest of Ivory Coast, although, as we have seen, the narrowing of the forest belt provides a natural passage through all but 80 miles of dense forest. It has been estimated that in such a densely forested area, clearing of the forests to build a railroad means that about 80 thousand trees may have to be cut for one hundred miles of railway. Some of the trees may be 30 feet in circumference and have buttresses also.⁴

B. Further difficulties were faced in the construction of roads from the Nature of the Soil and The Climate.

In most of these regions, stone is rare or completely unknown, so that for a very long time, surfaced roads were impossible to build. However, trails were unusable in the rainy season, which had a duration of six months or more. With many rivers, it was necessary to build bridges, very often wooden, which in the high humidity did not last long.

⁴W. S. and E. S. Woytinsky. World Commerce and Governments, Trends and Outlook. Twentieth Century Fund. New York, 1955. p. 355.

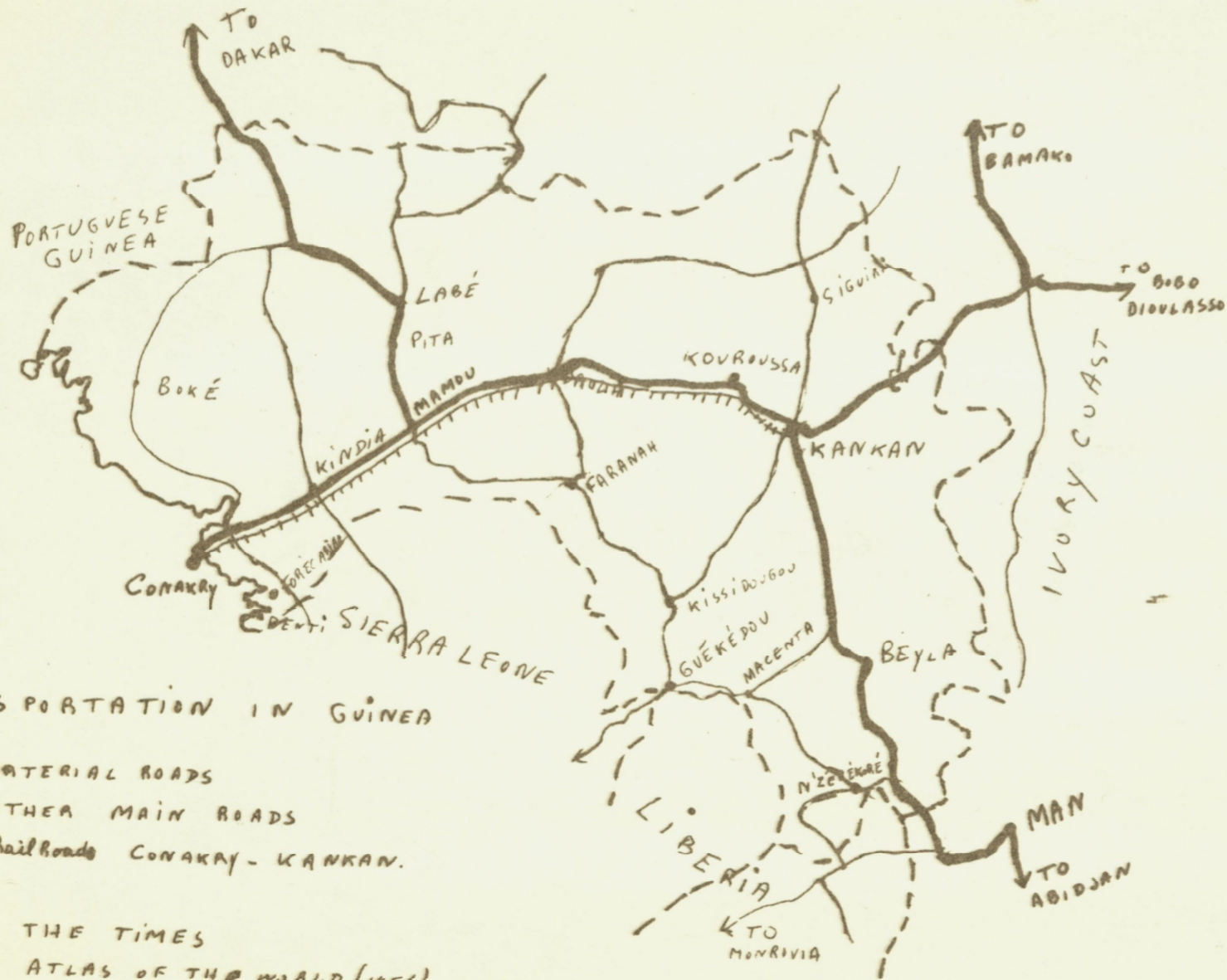
Before 1930, there were almost no surfaced roads in either country, although a very significant trail system had been developed. In Guinea, trails very often went along the already existing native tracks. In Ivory Coast, the Tse-Tse fly had prevented even the elementary track pattern, and all had to start from scratch. Because of the lack of capital, trails had many twists and turns as they surmounted the difficulties of the configuration of the land.

We have already noted the absence of important navigable rivers in both countries. In Guinea, many rivers are found along the sea shore, but because of sand bars, no navigable openings exist which would permit an easy penetration within the coastline. Along the Ivory Coast, there is a lagoon, but unfortunately, it is cut in small parts by tongues of land and does not have direct access to the sea.




C. The Goal and Purposes of a Transportation Pattern.

At the very beginning of the French occupation in Ivory Coast and Guinea, the countries themselves were not considered very valuable. The main purpose was to provide access to the "fabulous wealth of the Sudanese zone".⁵ Railroads could provide such a contact, and a very ambitious pattern was conceived, which, from various points along the coast, would converge at the Niger River. Thus from the beginning, the commercial purpose of transportation in this region was to reach the Sudanese zone in the middle Niger basin.

⁵Thompson and Adloff. French West Africa. Stanford University Press. 1957. p. 292.



TRANSPORTATION IN GUINEA

-  ARTERIAL ROADS
-  OTHER MAIN ROADS
-  Railroads CONAKRY - KANKAN.

AFTER THE TIMES ATLAS OF THE WORLD (1956)

SCALE: 1: 5,000,000.

FIGURE 4

TRANSPORTATION IN THE IVORY COAST

- MATERIAL ROADS
 - OTHER MAIN ROADS
 - ⋯⋯⋯ RAILROAD ABIDJAN - OUAGADOUGOU
 - X AIRPORT WITH INTER-CONTINENTAL OR WEST AFRICAN SERVICE
- AFTER THE TIMES ATLAS OF THE WORLD

SCALE. 1:5,000,000 -

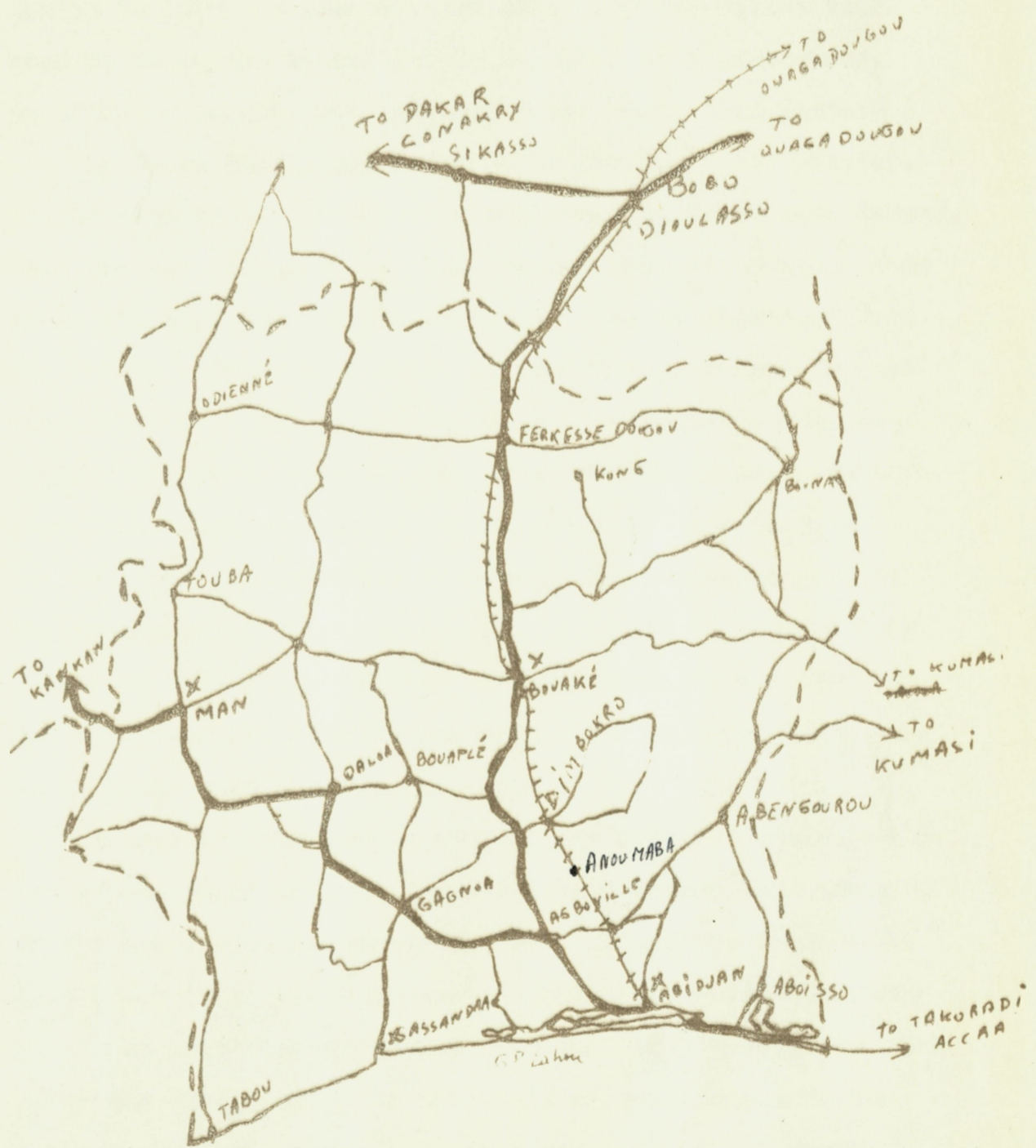


FIGURE 5

5104

In Guinea, the army had made a reconnaissance of possible routes as early as 1887. The construction of the railroad from Conakry, Guinea's main seaport, was begun and reached Kankon in 1914. A plan existed to extend the Guinea railroad to Beyla and to build a branch line to Younkounkoun, 80 miles in length, but this was never done. (See Picture.)

In Ivory Coast, the distance to the Niger was greater. At the beginning, a railroad was planned to link Grand Bassam, then the main seaport, to Kong, rather than the Niger. Kong is in the northeast of the territory, and an important caravan center. However, a study of the terrain showed the inadvisability of building through an underpopulated forest region. In 1902, Abidjan, the site of Ivory Coast's future deep water port was chosen as the point of departure, and the railroad was constructed through the narrowest part of the forest belt. It is not until 1934 that it reaches Bobo-Dioulasso, 505 miles inland. At this time, it was decided not to extend the line to the Niger, but to Ouagadougou, in Mossi land, populated if not rich.

Gradually, the development of the country itself, which was in the background in the early days became the main goal of the transportation pattern. Once it was realized that Guinea and Ivory Coast themselves had great potentialities, and these were more important than that of the Sudanese zone, there has been a shift in the goals of the transportation pattern, toward a more "territory centered" development.

D. Human Problems.

The coast of West Africa has long been called "the white man's grave", and these countries did not have a very good reputation in Europe. They were not appealing to the average person, and their development was slowed down for a long time by a shortage of qualified technicians. Outside civil servicemen, the only civilians to settle there were usually unable to have a normal life back home.

Therefore, the main tasks, preliminary to any great economic development, rested upon the army whose "pacifica-tion" duties included the opening of the country. We will consider in more detail some of the consequences of this fact on the evolution of the transportation system. Though the competence of these men is not questioned, their limited resources prevented any large scale programs. It is only during and after the second World War that civil engineers and other qualified civilians became interested in working in these countries. Efforts to educate African Technicians to take their normal place in the development of their coun-try is now going on. The French are shifting from direct leadership to "technical assistance".

As we have already seen, the average population density, especially that of Ivory Coast, is relatively low. The con-sequence is that, "There has always been a dearth of wage laborers in the Federation."⁶ The only means of getting labor was the slavery of the negroes, or the war prisoners of the

⁶Thompson. Op. Cit. p. 491.

Moslem conquerors. The French suppressed slavery, but they were faced with the physical and psychological obstacles to the development of a labor force. After a brief and unsuccessful experiment with importing a limited number of laborers from Mexico and China, the French fell back on forced labor.

Every male between the age of 18 and 60, European and African alike, was subjected to an annual tax which required them to serve a certain number of days of labor in whatever enterprise the administrators assigned them. Experience proved that the forced labor produced only mediocre results. Deep resentments occurred and lowered the country's agricultural output. The general conscription was also used to provide at least some of the labor force needed. But on the whole, it was difficult to stabilize labor as the men were not used to a permanent and fixed work.

On the other hand, it is worth noting that the construction of railroads, even with narrow gauge, difficult route, and low capacity, released labor for agriculture and other activities which was previously necessary for portage. This had long been the only means of carrying imports and exports, especially in the countries we are discussing here, as the Tse-Tse fly prevented any use of animals for transportation in most areas.

To summarize, we note that up to 1945, most of the routes and ports had been established, although they were not of great economic utility.

Knowledge had been acquired of the main problems, and a growing interest was shown in the countries' own economic development or the potentialities for such a development.

CHAPTER IV

RAILROADS.

Railroads were the first and fundamental means of transportation in West Africa and remained so until 1914. However, after World War I, truck transportation began to attract much of the short distance traffic in valuable products and passengers. Though the era of the expansion of the railroad seems closed today, (very few new routes are planned) the economic importance of the railroad continues to be considerable. Great efforts have indeed been made since 1945 to improve and modernize African railroads. As a result, their efficiency is increasing and transportation costs are a lower part of the final price of the products.

A. The Existing Railroad Pattern.

1. Guinea, has 410 miles of single track railroad from Conakry to Kankan, which has been completed since 1914. It was designated to link through the mountains of the Fouta-Djallon, the upper Niger and its navigable affluents with the coast. Political considerations have indeed prevented the building of the line through the narrowest part of the highland mass, i.e., the waist-line between the Fouta-Djallon and the Guinea Highlands, lying on the boundary with the northeastern part of Sierra Leone. Because of an unfortunate boundary, both railroads, (in Guinea and in Sierra Leone) were built at a considerable cost and have only moderate traffic to offset their high capital overhead.

The Route. Starting from Conakry, capital of Guinea and the only important port, the line runs southwest - northeast, through the coastal plain to the Fouta-Jallon. The city of Kindia, where it crosses the great Guinean Valley, is a creation of the railroad and has become an important point for shipment of bananas. Mamou, another creation of the railroad, is also an important center and the outlet of the cities of the internal part of the Fouta-Jallon. Then, the railroad reaches Dabola at the contact of the Fouta-Jallon and the Niger plain. The last section runs to Kouroussa, where the Niger is at the limit of the navigation; then, onto Kankan, the eastern terminus on the Milo River. The Milo is easier to navigate than the Niger. Kankan is a center for road and airways; a market for local products; and for products coming and going to the Guinea Highlands.

As a single track railroad with a narrow gauge, (1 meter instead of the normal gauge of 1.44 meters) it traverses an extremely difficult route. It rises to 2,346 feet, but this figure gives little idea of the very frequent steep gradients and sharp curves on the railway. Frequently, the lines are on the edge of precipices.¹

The first section, Conakry to Kindia, requires 148.5 kilometers, as against a straight line of only 106 kilometers. The second section required 151.5 kilometers from Kindia to Mamou, and only 98 kilometers in a straight line. The third section, Mamou to Dabola, is 142 kilometers instead of 108.

¹Harrison Church. Op. Cit. p. 298

2. Ivory Coast. The main obstacle in this country is the rain forest. The railroad which was started at the beginning of the century to link Abidjan (on the coast) with the interior, has been modified. Bobo-Dioulasso, in Upper Volta, was reached in 1934, making the total length of the line 505 miles. A change in plans selected Ougadougou, instead of the initial goal of the Niger River, (Ougadougou is the populated Mossi country of Upper Volta) and is now the interior terminus. The railroad is still called Abidjan-Niger. The last part of the line was opened in 1954, making a total length of 711 miles, of which about 450 miles are in Ivory Coast.

The line goes south and north through Ivory Coast. In the 120 miles of deep forest, it passes Agboville, a creation of the railroad and an important center of timber cutting, bananas, cocoa and coffee production. After Dimbokro, (located at the edge of the forest) it reaches Bouake, second largest city in the country. Bouake is also an important market and a road center. Through the Sudanese plateau, it passes Ferkessedougou, in the northern part of the country and turns northeast to reach its terminal, Ouagadougou. The technical characteristics are similar to those found in Guinea, although the route is much easier, especially after the forest has been crossed.

B. The New Conditions. Improvements of the Railroad.

The railroads of French West Africa emerged from World

War II in extremely bad conditions, i.e., technical deficiencies, obsolete equipment and heavy deficit. Then several measures were taken to improve this unsatisfactory situation.

1. An important change was introduced in the Financial Situation and the Administrative Statute of the Railroads. Until that time, the Public Works Department of the various territories (Guinea, Ivory Coast ...), had run the line in the territory, with special budgets, separate but annexed to those of the territory. In 1947, a new organization, the "Regie"² was established, to run under a common direction all the railroads of the Federation with an executive committee established having wide financial and administrative powers.³ Supplementary decrees increased the powers of the Director-General of the Regie over the territorial network and extended its authority over the Federation's ports and its highways and waterways, and general transportation system. This, however, has been of little practical importance. Since 1956, the Regie has lost much of its importance due to the political evolution. In 1958, Guinea and Ivory Coast recovered the complete control of their railroad system.

²Regie des Chemins de Fer de L'Afrique Occidentale Française. i.e., Regie, (a type of legal organization in French law) of the railroads of French West Africa.

³Thompson. Op. Cit. p. 295. See details on the administrative reforms in Chapter 10, under "Transportation Policy".

2. The Important Increase in the Amount of Investment, which follows a change in the administrative organization. Successive plans have been developed for modernization, with emphasis on improving the existing pattern and reducing the costs, rather than achieving the grandiose scheme of building of a network of tracks from the coast, converging to the Niger River.

3. The Main Technical Progress realized has been the introduction of diesel locomotives. Dieselisation has permitted the replacement of wood fuel by oil. With faster time tables, it reduces operating expenses. Progress was also realized on the track in Ivory Coast, where post-war investments have been more important than in Guinea. A complete modernization has been carried out between Abidjan and Dimbokro; thereby allowing, reduced gradient, longer curves, and double track on some sections.

4. Except for the completion of the half-finished Mossi railroad (the prolongation of the Ivory Coast Railroad to Ouagadougou in Upper Volta), no new routes have been opened. Studies have been made of some extensions, but all new construction has been delayed.

5. Important efforts to improve passengers satisfaction have been made in order to attract them to the railroads. These improvements include: Introduction of dining cars; sleeping cars; hotels in the main railway stations, (Kindia, Mamou, KanKan, and Bouake). At the same time, many efforts

and innovations were carried out to provide better services to those shipping freight by rail. These include: Door to door services by agreements with road carriers; use of buildings, and storage facilities. The modernization of the railroads enabled them to offer carriages better fitted to the particular needs of the customer. In Ivory Coast, in 1955, an interesting experience of "Piggy Back" was inaugurated which was a collaboration between the railway and the roads. i.e., special cars on the Abidjan-Niger line carry trailers loaded with goods destined to cities which are not on the railroad; at the nearest station, the trailers are unloaded and then towed by heavy tractors to their final destination.⁴

C. The Traffic.

A common characteristic of both railroads is that the major part of their traffic arises on a small portion of the whole line.

1. In Guinea, "until the development of banana exports on a large scale, the railway had little traffic and its importance was mainly administrative."⁵ Even today, the most traffic originates in the banana growing area south of Mamou.

⁴Bosc, J. Ph. Les Chemins de Fer en Afrique Francaise. In: Chroniques d'Outremer, Etudes et Informations. Paris, No. 14, April, 1955.

⁵Harrison Church. Op. Cit. p. 298.

Important efforts have been made to draw the cattle of the Futta-Jallon area, the rice of the Niger plain, and the various productions of the Guinean Highlands to the railroad. As a means of economic development of the hinterland, the railroad is used for the transportation of imported products such as textiles, beverages, cement, and oil products.

2. In Ivory Coast, "fast diesel rail-cars operate between Abidjan and Bouake and most of the passengers and freight traffic originates between the two towns. The economic value of the railway north of Bouake is debatable."⁶ The southern forest belt indeed is by and large the richest part of the country and the prolongation of the rail to the northern part of the country and to the Upper Volta was mainly a political decision without economic significance.

The traffic going to and originating from Upper Volta in 1954⁷, is low in absolute value and also unbalanced for the present.

Freight: 73,050 metric tons entered Upper Volta
from Ivory Coast.

8,425 metric tons left Upper Volta
from Ivory Coast.

for Passengers: (the opposite tendency is shown)

21,339 entered Upper Volta from Ivory Coast

47,205 left Upper Volta from the railroad to
Ivory Coast.

⁶Ibid. P. 358

⁷Bosc. Op. Cit.

However, the disequilibrium in freight was partially offset by a transport of cattle entirely southbound. i.e., 29,133 cattle and 42,280 sheep shipped to the Ivory Coast Terminal. Such small figures for a whole year hardly justify the operating expenses of several hundred miles of railroads as an economic condition.

The traffic on the whole line has increased considerably since the war, and during the recent years the importance of freight is greater as compared to the number of passengers. The latter fact is the consequence of the opening of the port of Abidjan to deep-water-ships.

	<u>First Semester Only</u>				
	<u>1939</u>	<u>1952</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
<u>Passengers/km. Million</u>	78	167	70	65.2	85.4
<u>Freight/metric tons/m.</u>	60	115	84	87.6	80.2
<u>Millions</u>		(8)		(9)	

D. Economics of the Railroad Transportation. Specific Cases.

The table in "Revue d'Economie Politique"^{9a} shows that in French West Africa, as a whole, the railroad is utilized only to one-fifth of its capacity. Fixed costs are still higher than variable costs. Financial equilibrium, experience has shown, can be reached in West

(8) I.F.A.N. Presentation de la Cote d'Ivoire.
Abidjan, 1953. p. 57.

(9) Ministere de la France d'Outremer. Bulletin de Conjoncture des T.O.M. Paris, No. 17. October 1958.

(9a) Revue d'Economie Politique. Special issue on L'Economie de L'union Francaise d'Outremer. 1954. p. 306

Africa when fixed costs equal variable costs. Then, if the traffic increases by 50 percent, average cost decreases by 17 percent; if the traffic increases by 100 percent, average cost decreases by 25 percent.¹⁰

A figure for Ivory Coast¹¹, shows that in 1954 the average cost per ton/km was 15 francs (3 cents), while the marginal cost was as low as 4 francs, (less than 1 cent). Therefore, any increase in traffic contributes to reduce the average cost.

Naturally, the railroads try to attract as much traffic as possible, but they face the growing competition of road traffic. Therefore, the railroads are induced to lower their rates in the regions where this competition is sharp, i.e., in the rich southern belt. But, at the same time, as public services, they have a regulating role in the economy of the country which means they should contribute to the economic development of the hinterland by establishing regressive rates for long distance transportation. Those two goals are antagonistic, and the first has generally been preferred.

As for the building of new railroads, two different cases occurred:

1. In the first case, studies have been made in Ivory Coast concerning a proposal to build a new line in the

¹⁰Bosc. Op. Cit.

¹¹Revue d'Economie Politique. Special issue on L'economie de l'union Francaise d'Outremer. 1954. p. 311.

western forest belt requiring 150 miles of railroad from Anamouba, on the existing line, to Daloa, which is the center of a potentially rich agricultural region. The question of whether or not a railroad should be built was answered after considering:

a. The long run increase in traffic due to the opening of the region, where it seemed that the most realistic computation should be made on the coming ten years.

b. The total cost of the new installations, with consideration to the special problem of embranchment and low marginal cost on sections of the already existing line.

c. The nature of the traffic, of the needs to satisfy, and the specific interest of utilizing railroads to meet those requirements.

d. The mode of financing and the alternative use of funds. As capital would be provided by France, the main question was that of the maintenance costs and the comparative interest of building roads with this capital.

The traffic expected was important: mostly timber (50 thousand metric tons a year), but also coffee, cocoa, palm kernels, cola nuts, rice, and on the other way, imported goods. It was expected to reach 150 thousand tons¹² a year very rapidly.

¹²Bosc. Op. Cit.

In 1952, the cost of the new section was estimated to be \$6.5 million.¹² The low marginal cost on the sections of the existing railroad was an argument in favor of the construction, this was partially offset by the consideration that most of the traffic already originated on that part of the line which was utilized at nearly full capacity before the additional traffic was developed, however.

Some difficulties were met in developing the exports of timber which showed that even low railroad rates would be too high to allow the shipment of this product to the coast at a competitive price. The other products were relatively high value goods which could be handled by truck. As the maintenance costs, to be carried by the country, were lower if a road was built, excellent roads have been built in this region, coffee and cocoa production are expanding and the idea itself seems to have been abandoned.

2. In Guinea, a second specific case was completely different. The problem was not mainly to open a region of which the output will increase due to the new facilities after some time. On the contrary, it was given the total output of alumina, and later on aluminum, which the planned installations would yield. How important a part of the total investment would the railroad be? Compared to the total investment, (about \$400 million) the cost of 150 miles of railroad to the coast was low (about \$10 million). This was considered a part of the fixed cost of the huge enterprise. Any extra traffic which would necessarily arise

would be a gain for the aluminum company.¹³ Therefore, the construction of the line, from Conakry to Fria, in the southern Fouta-Jallon mountains started in 1958. There is a good probability that an important number of passengers will be willing to go by train from the capital to the Fouta-Jallon mountains' area along this line. Consequently passenger carriages could be introduced on the line and contribute in turn to reducing the ratio of the fixed costs to the variable cost.

E. Improvements and Shortcomings.

As a result of the post-war efforts of investments, the railroads of French West Africa offer much better services than before, and at a lower cost. The productivity, in number of units of traffic as compared to the number of employees has been increased: with a basis of 100 in 1938, it reaches 173 in 1954 for the whole French Africa.¹⁴ However, this improvement is much more on the Abidjan-Niger line, where most investments have been realized, than on the Conakry-Niger railroads. As a consequence, the financial situation, which was extremely unfavorable in 1951, 1952, 1953, improved considerably in 1954. While the Abidjan-Niger increased its profits, the Conakry-Niger still had a sizable loss.¹⁵

¹³On the alumina and aluminium projects in Guinea, see below Economic developments on transportation, Guinean projects and perspectives.

¹⁴Bosc. Op. Cit.

¹⁵Thompson. Op. Cit. p. 297. Also see Chapter X.

The main defect of both lines is that, while the railroad is an incomparable means of transportation for heavy and bulky products, their technical characteristics, especially the narrow gauge, makes such a transportation difficult. If the route is extremely difficult, as it usually is in the case of Guinea, the rail loses most of its advantages. Secondly, the rates do not increase as rapidly as the general level of prices and the wages of workers, therefore, the competition of trucking is a major problem. Today, "by a natural logic, the road is now the pioneer, and is normally the precursor of the railroad."¹⁶

Some exports can find a market abroad (for example, the bananas of Ivory Coast), only if the rates are reduced. In such cases, free competition by road transportation may, by undercutting railway rates, entail a loss of revenues which the taxpayer must make good. While the prohibition of the transportation of goods (other than that of local products) on roads competing with railroads may be a legitimate procedure, when roads expand and follow circuitous routes, such a prohibition can only be enforced to the prejudice of the economic development of the country.

¹⁶ Lord Hailey. Op. Cit. p. 1597.

CHAPTER V

ROAD AND HIGHWAY TRANSPORTATION

"The definition of 'roads' in Africa is a very wide one. It includes everything from an unimproved track to a bitumized road."¹ This consideration must be kept in mind when studying road transportation in Guinea and Ivory Coast. We have to consider that most of the mileage consists of mere tracks which would not be called roads in western countries. Roads are, however, of major importance in the economic life of the countries under survey, even though many of them are practicable only during the dry season.

As it is the case for the railroads, the major part of the present road network in both countries was built before World War II, with insufficient means and an elementary technique. After the war, most expenses were destined to improve the existing pattern, thus reducing the cost of transport or making more roads available during the whole year.

At the beginning of the colonial period, the only existing "roads" were tracks for the human portorage. They were used by the slave traders, and in Guinea to carry the products of the Futta-Jallon to the European merchants established on the "southern rivers". Since the Tse-Tse fly prevented the use of animals, no large scale transportation could exist. Then, when the French took over the country,

¹A Freudenberg. Africa South of the Sahara, ed. The South African Inst. of International Affairs. Oxford Univ. Press. 1951, p. 222.

roads were needed as a means of penetration of remote areas, and as a means of linking the different regions with the main port and the railroad, through which they could export their products. Thus they were desired, but as the very small amount of capital available was used for railroads and ports, there were practically no funds available for roads' construction.

Civil administrators of the territories, with abundant and cheap forced labor, but without capital and equipment, started the construction of a network of roads. These were primitive, mere tracks or earthen roads, never surfaced, and with steep gradients. Most were impassable up to eight months a year during the rainy season. However, the existence of a network proved to be of extreme importance for the future, and in this respect, Ivory Coast had the great advantage of an early governor, Angoulvant, who was strongly road-minded. Because of this, Ivory Coast had more roads than most western African countries.

A feature of both road systems was the existence of much better connections between various territories and foreign countries than those provided by the railroad. Although, for a long time, "One of the main concerns of the French authorities when building the inter-territorial network has been to avoid the crossing of the boundaries of British territories,"² progress has been made during the recent years.

²Lord Hailey. Op. Cit. p. 1586

Roads are more likely to ignore, or at least to overcome artificial political boundaries, and have a major importance in inter-territorial and international communications.

Among the many difficulties to overcome when building roads in those countries we can mention:

1. The "bush encroachment", in regions where natural vegetation is luxuriant, so that the frequent removal of grass and bush is essential wherever traffic does not have a great density.

2. The abundance of water and swamps which often makes drainage a costly necessity and creates the need for bridges. Harrison-Church summarizes these problems when writing:

"Roads are costly to build and often more expensive to maintain than railways. Road transportation may be interrupted in the wet season. Time devouring ferries also hinder road transport."³

A. Recent Development. Goals and Achievements.

Repairs and maintenance on the insufficient road network could not be accomplished during the second World War, so that when the emphasis was put on in 1945, the development of African territories, the improvement of the system of transportation was considered as its first condition, and roads became naturally a major sector of all development projects.

The railroads were considered the most appropriate means of transportation for bulky products, but they required

³Harrison-Church. Op. Cit. p. 158

large investments, and the traffic expected was not heavy enough to justify them.

Consequently the decision was taken by the administrators of the fund for investment and Economic and Social development (F.I.D.E.S.)⁴ not to build any new railroad and in turn to make important investments in the improvement of roads.

Those improvements were mainly in two directions:

1. A reduction in the number of seasonable roads, practicable only during the dry season. For the whole of the Federation of French West Africa, the total of seasonable roads has been reduced between 1946 and 1952 from 32 thousand miles to 23,600 miles.⁵

2. An increase in the number of bitumized or surfaced roads, particularly on those sections where heavy traffic existed or could be expected. It has been estimated that the maintenance of an earthen road is "impossible" if the traffic is heavier than fifty vehicles a day.⁶ So surfacing is justified on the sections of roads where this figure is exceeded.

⁴French organization for capital investment in overseas territories. See below Investments.

⁵Source: French Economic and Technical Bulletin. Ottawa, 1958. No. 2.

⁶A. Jourdain: Routes et Pistes, in Chroniques d'Outremer Etudes et Conjoncture. Paris. No. 14. April, 1955.

In Guinea, for example, the following figures were noted in 1953:⁷

Exit of Conakry:	6,000 vehicles per day
Road Conakry-Kindia:	200 vehicles per day
Road of the southern belt, Conakry-Boffa:	250 vehicles per day

In Ivory Coast, according to the same sources:

Abidjan Bridge:	12,000 vehicles per day
Road Abidjan-Grand Bassam:	4,000 vehicles per day
Road Abidjan-Dabou:	2,000 vehicles per day
Road Dabou-Gagnoa:	400 vehicles per day

At the end of the first plan for modernization and equipment, the following situation was found:⁸

January 1, 1954. Distances in Kilometers

	<u>Total Permanent Roads</u>	(Bitumized ^{8a} <u>Roads</u>)	<u>Seasonal Roads</u>	<u>Total Roads</u>
<u>Ivory Coast:</u>	8,600	(120)	8,100	16,700
<u>Guinea:</u>	5,000	(193)	2,400	7,400

We may add 65 kilometers of surfaced roads in cities in Ivory Coast, and 9 kilometers in Guinea.

In Guinea, the best permanent roads, including all the bitumized sections are:

A road from Conakry to Mamou, running parallel to the railroad.

A road from N'zerekore to Diecke and Monrovia, in Liberia, which is of major importance for the exportation of the rich agricultural products of the Guinea Highlands.

⁷ Ibidem.

⁸ Thompson, Op. Cit. p. 301

^{8a} These Bitumized Roads are included in the Permanent Roads.

- . A road crossing the country from West to East, and linking Guinea with Dakar and Ivory Coast.

In Ivory Coast, the most important roads are:

- . The road coming from Guinea and linking Abidjan to this country and to Dakar.
- . A road crossing the country from Abidjan to Upper Volta and Sudan.

It can be noted that the road network, considering either permanent roads or the total length is much more developed in Ivory Coast than in Guinea.⁹

Although the existence of through roads between territories or within territories is of great interest, it must be realized that the nature of road transportation gives an outstanding importance to some sections for short or medium haulage between important cities or major areas of production while only a very small part of the total traffic utilizes the whole length of a definite road. In Western Africa, it has been estimated that one half of the total traffic arises over 8 percent of the total network, and 80 percent over less than one-third of the system.¹⁰ That is the reason why the decision was taken by the authorities to scatter improvements, especially the construction of surfaced parts of the roads, rather than build long inter-territorial trunk roads with modern highways characteristics, from end to end, in which certain sections would have to carry only

⁹In Guinea, we find about one mile of road for 20 square miles; in Ivory Coast, 1 mile of road for 12 square miles.

¹⁰French Economic and Technical Bulletin. Op. Cit.

insignificant traffic. It appeared essential to concentrate their efforts on particularly heavily traveled trunk sections where traffic justified required costs.

B. Traffic, Vehicles.

The greater development of roads in Ivory Coast is both a cause and a consequence for the greater number of vehicles and the greater importance of road transportation. In both countries, the increase in the number of vehicles has been extremely rapid in recent years as shown by the differences in 1954 and 1958 figures.

		<u>Units</u>		
		Private and Commercial Cars	Trucks	Total
<u>Ivory Coast:</u>	1954 ¹¹	3,644	7,499	11,143
	1958 ¹²	9,541	13,746	24,317
<hr/>				
<u>Guinea:</u>	1954 ¹¹	1,781	3,225	5,006
	1958 ¹²	3,763	5,524	9,638

The 1958 figures mean that there was 95 motor vehicles for 10,000 inhabitants in Ivory Coast; and 40 motor vehicles for 10,000 inhabitants in Guinea. The Guinean figure is the same as that of the whole French West Africa.

The ratio of private cars to the total number of vehicles appears strikingly similar in both countries:

¹¹Thompson, Op. Cit. p. 302

¹²Bulletin de Conjoncture des Territoires d'outremer.
Op. Cit.

38.75 percent private cars in Ivory Coast

39. percent private cars in Guinea.

When we consider that in a country like France, over sixty percent of the total number of vehicles consists of private cars, we can see the essential role played by road transportation in the economy of those countries.

It is difficult to measure precisely the overall importance of road transport. The main difficulty arises from the fact that trucks are privately owned. They generally belong to small enterprises, mostly African or Syrian. An estimate for 1951 however, gives a very interesting and rather surprising figure:¹³ Out of 115 thousand metric tons of coffee and cocoa exported from Ivory Coast during that year: 42,000 had been shipped by railroad, 73,000 had used road transportation.

An important characteristic of road transportation is its "African" aspect. Thompson notes,¹⁴ that for the whole French West Africa, 65 percent of all vehicles are owned by Africans, and Africans tend to monopolize light truck transportation.

C. Economic Aspects of Road Transportation.

A main section of the road program inaugurated in 1945, was to reduce the cost of transport between the regions where the goods for exports were produced and the ports (Conakry or

¹³A. Jourdain. Op. Cit.

¹⁴Thompson. Op. Cit. p. 300

Abidjan) as well as the cost for imported goods shipped in the hinterland. As we have seen, roads were preferred to railroads because they required a lower amount of fixed capital.

The cost of building a new modern surfaced road in the countries under survey was estimated in 1955¹⁵ to be between \$20 thousand and \$40 thousand per kilometer. It was also estimated that the cost of modernization of an already existing track (an earthen road of bad quality) was almost the same figure¹⁶ plus the maintenance cost which was estimated to be from \$400 to \$600 a year per kilometer.

The main elements in the overall cost were:

Topographic studies and preparation of the ground:	\$ 6,000 to \$14,000
Small art works:	2,000 to 6,000
Surfacing:	12,000 to 20,000
TOTAL.	\$20,000 to \$40,000

Sizable economies are realized by the improvement of roads. In Ivory Coast, it has been estimated that the cost of operating a truck was formerly 16 cents a kilometer, and it has been reduced to 8 cents on a modern surfaced road.¹⁷ The average savings realized by a modern road are, somewhat lower, however. The figure given is about 50 percent of the former cost.

¹⁵A. Jourdain. Op. Cit.

¹⁶Ibid.

¹⁷ Ibid.

A general estimate has been made for French West Africa¹⁸ on a road which carries a traffic of 100 thousand metric tons a year (i.e. 100 trucks loaded with three tons a day), the yearly savings would be \$1,700 per kilometer. If we consider that the cost of the construction has been maximum, \$40,000 per kilometer, the return on the investment would be 4.25 percent a year, without taking into consideration the returns for the capital. If we add the maintenance, the returns would be about three percent a year.

For an improved earthen road, the cost of building is only \$6,000 to \$8,000 per kilometer, and the maintenance costs, \$400 a year per kilometer. The economies realized are about 30 percent of the cost of transport on the former track. Only a light traffic however, can be carried by such roads.

The economic interest of improved or new roads is not limited to the direct and immediate savings realized on the cost of transport. Reduced cost of transport leads to a more than proportional increase in production shipped. By integrating new regions in the market economy, it leads to greater development and increased income which are still more significant than the immediate savings realized.

An important problem arises when formulating a road policy: the problem of the location of roads. As a general

¹⁸A. Jourdain. Op. Cit.

rule, in countries where capital is scarce, competition between road and railroad is a useless waste.

We find however, in both countries that important expenditures have been made on roads running parallel to the railroad. This is especially striking in Guinea, where the best road of the country follows exactly the same route as the railroad between Conakry and Mamou. The main reason for this coincidence is that Mamou is on the great trunk road Dakar to Abidjan, consequently, pressure has been exerted by private carriers to obtain the improvement of the route Conakry-Mamou, which would enable them to bid for important traffic while their expenditures would be low.

In that case, as in many others, the private ownership of trucks has produced strong pressure to favor road transportation to the expense of the railroad.

One consequence of the development of a satisfactory road system in Ivory Coast has been a growing tendency among the increasing number of relatively wealthy African planters to buy private cars. In purchasing these depreciating vehicles, they are spending most of their savings, in spite of the capital formation being low, and the needs for productive investments extreme. This can be considered a very unfavorable consequence of the development of a satisfactory road situation.

D. Specific Forms of Investment in Roads.

The general problem of investments will be dealt with in a special chapter, but we can note here some sources of funds concerning exclusively the road system.

1. In order to increase the amount of money available for road building and improvements, a permanent "road fund" was created in French West Africa in 1952, with the revenue of a tax levied on the gasoline and oil used in the Federation. The money could not be used for the upkeep of the roads, which remained the responsibility of the ordinary Federal or territorial budgets. Allocations from this fund were made to the territories on the basis of their fuel consumption for 90 percent of the total, the last 10 percent were to be divided among territories having a limited number of roads and little traffic.

The fund raised surprisingly large sums: \$5.6 million a year.¹⁹ At the beginning of 1955, Ivory Coast had been allocated \$3 million, and Guinea \$1,240,000. This particular road fund occupied in the overall road building program a position midway between F.I.D.E.S., which paid mainly for inter-territorial highways, and that of the local budgets, which provided for maintenance.

As for the way they could use the money, the various territories were allowed the widest possible initiative.

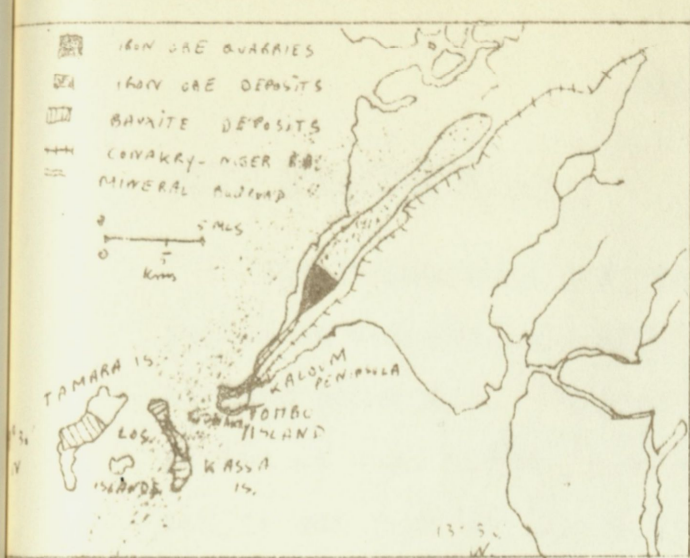
¹⁹Thompson. Op. Cit. p. 300

The sole yardstick applied under the regulations of the fund was that the proposed improvement on roads should be a durable type, and contribute towards a reduction in the cost of motor transport. Proposed programs were to be approved by the territorial assemblies, and were to be integrated within the general frame of the second four-year plan. The road fund policy has created considerable finished road, especially in Ivory Coast, where an important amount of money has been made available.

Further, in Ivory Coast, special allowances from the duties levied on the export of cocoa and coffee (one-third of those duties), have been established for the improvement of secondary roads and tracks in the regions where those products are grown. In 1953, the sums provided amounted to one million dollars.

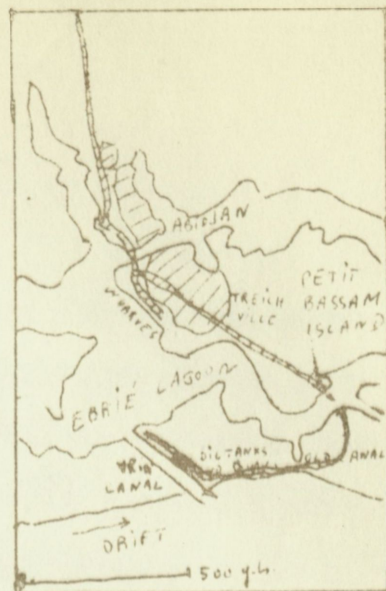
Those funds have been responsible in part for a "road of coffee", from Man to Gagnoa, and for a "road of cocoa", from Abidjan to Abengourou.

Altogether, the road system is of major importance in the economic development of both countries. Ivory Coast has been favored from the beginning with a more developed network than Guinea.



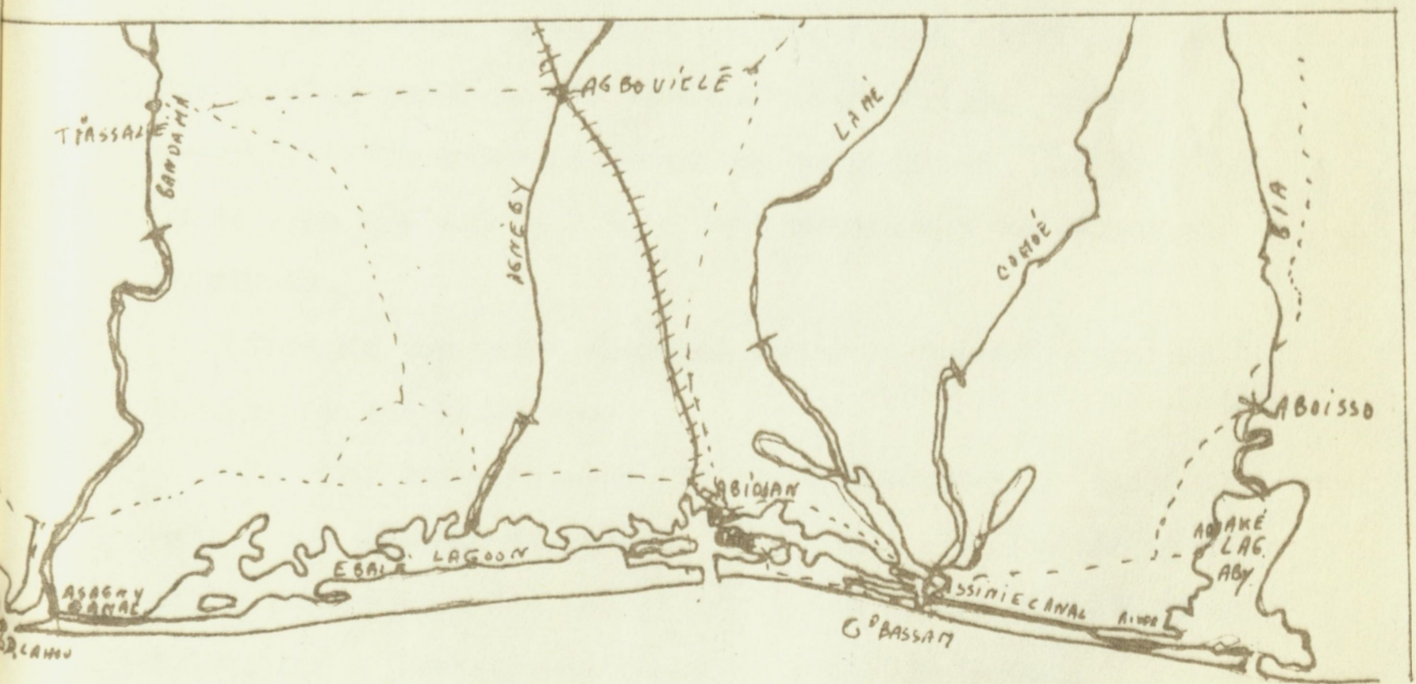
CONAKRY, ITS ENVIRONS AND MINERAL DEPOSITS
AFTER HARRISON CHURCH, WEST AFRICA, P. 283

FIGURE 6



ABIDJAN AND THE VRIDI CANAL
AFTER HARRISON CHURCH, WEST AFRICA
P. 349

FIGURE 7



LAGOON SYSTEM AROUND ABIDJAN AND OTHER MEANS OF COMMUNICATION

- RIVERS
- NAVIGABLE RIVERS AND CANALS
- PERMANENT ROADS
- RAILROAD
- + TERMINAL POINT OF RIVER NAVIGATION.

AFTER, "PRÉSENTATION DE LA CÔTE D'IVOIRE" I.F.A.N. 1953. ABIDJAN.
NO SCALE GIVEN.

FIGURE 8

CHAPTER VI

WATER TRANSPORTATION.

The outstanding importance of ports and sea transportation in the economic life is a striking feature of most African countries. "During the first years of French occupation of West Africa, seaports played the paramount role, and it was from the coast that Europeans penetrated into the interior. Even after other means of transportation became available, the status of the federation's ports continued to serve as a barometer of the economic development of the individual colonies to which they were attached."¹ At the same time, as we have already noted, there are very few natural ports on the coast of West Africa. Almost everywhere the shore is dangerous to approach, and the few ports which are existant have been enormously expensive to construct.

Some of the major features concerning water transportation are the following:

1. The insignificance of river navigation. There is only a low mileage navigable. There are a few miles navigable inland from the sea on the small rivers of both countries, and a section of the upper Niger in Guinea.

2. The importance of the lagoon-coastal rivers system in southern Ivory Coast.

¹Thompson. Op. Cit. p. 303

3. The concentration of almost all the import-export traffic in a single port in each country: Abidjan in Ivory Coast, and Conakry in Guinea.

4. The high cost of building and maintaining ports.

A. Internal Navigation.

1. The only extensive river system available for navigation in either country is the Niger, between Kouroussa in Guinea, and Bamako in the former French Sudan. Unfortunately, the river is cut by rapids right below Bamako, and there is no navigation possible until Koulikoro. Because of this, most of the traffic originating in Sudan utilizes the Dakar railroad, the terminal of which is Koulikoro, instead of going up the Niger and then utilizing the Conakry railroad, which is the shortest route.

The river is easily navigable by day and night for tow boats and barges of 160 tons, carrying 120 to 130 tons,² only during four to six months a year, the really high water being from middle July to middle December. Several companies maintain steamers and lighters on the Niger between Bamako and Kouroussa,³ but during the period of low waters, another type of boats, much smaller has to be used.

The serious economic problem is the lack of coordination of high waters and the greatest need for water transportation. Local crops are brought in between October and

²Mouillot, Y. La Navigation en Afrique Occidentale. in Chroniques d'outremer. Etudes et Informations, April, 1955

³Hailey, Op. Cit. p. 1544

February, and are processed for shipment by the end of February or March, a period of insufficient water. Consequently, the average tonnage on the Niger between Bamako and Kouroussa is extremely small: for the year 1951-1952, it did not exceed 6,000 metric tons.⁴ Further Lord Hailey notes⁵ that the traffic between the two cities declined between 1925 and 1935, owing to the abandonment of the measures previously taken to maintain the navigation on the river, and also on the account of the extension of the Dakar-Niger railway to Koulikoro. The introduction of special rates for the carriage of low priced goods by the railroad encouraged traffic to utilize the rail to Dakar, where shipping facilities were at the time, superior to those of Conakry, the port of the southern Niger region. Even though Conakry is now an excellent port, the prospects are not good for the improvement of the navigation on that section of the Niger river.

2. Much brighter are the prospects offered by the river-lagoon system of the southern Ivory Coast. In the lower part of the country to the south of the forest belt, there are lagoons which parallel the sea shore. Isolated by sand bars a few miles wide, these extend about 200 miles from Fresco in the West, to the Ghana border. As for the coastal rivers, none is navigable over 45 miles from the sea,

⁴Mouillot, Op. Cit. p. 1

⁵Hailey, Op. Cit. p. 1544

However, they are used for numerous agricultural exploitations.⁶ Altogether, these rivers plus lagoon connections provide an interesting system of cheap transport for heavy products, especially since the port of Abidjan is situated on the main lagoon, Ebric Lagoon. It became a sea port by the opening of the Vridi through the sand bar.

A project of significance has been the realization of the Assinie Canal, linking the vast Aby Lagoon in the eastern part of the country, near the Ghanaian border, with the Ebric Lagoon and Abidjan, to increase the trade region of Abidjan. The prospects are bright for the region surrounding the Aby Lagoon is rich. The exploitation of the agricultural potential was prevented only by the high costs of transportation overland to Abidjan. Only 20,000 metric tons of timber, the most important product, could be shipped when the studies were made, because of the high cost of transport. It was estimated that this figure could be easily increased to 50,000 tons a year, when the canal was finished and in addition, the following traffic was expected: Coffee, 10,000 tons; Cocoa, 11,000 tons; Bananas, 15,000 tons; Manioc, 20,000 tons; Bitume, 10,000 tons; Ignames, 5,000 tons; and Miscellaneous, 1,500 tons. This means a total traffic of 72,500 tons a year, and if we add the timber and wood trade, it is well over 100,000 tons a year. The total length of the canal, finished in 1956 was 48.5 kilometers (about 30 miles), of which 18 kilometers (12 miles) was the Assinie

⁶I.F.A.N. Présentation de la Côte d'Ivoire. p. 58

River. The maintenance costs were estimated to be 250 million francs a year (\$500,000), while the returns on the customs duties due to the increase in the imports and the exports only, were 240 million francs a year (\$480,000). Therefore, the mere increase in the production was almost enough to pay for the maintenance. In addition, the economic advantages were numerous, to begin with, the increase in the traffic of Abidjan Port, for which great investments have been realized.⁷

B. Sea Transportation. Ports.

The difficulties arising from the nature of the coast, which offers no broad estuaries of navigable rivers, mean that practically all cargo intended for inland must be transported immediately as soon as it is landed, otherwise, considerable congestion develops in the harbor area. Consequently, good rail connections are of vital importance for Western African ports.

1. Guinean Ports. Conakry. The capital and main city of Guinea, Conakry, is by far the most important port. It is situated on Tombo island, an island two miles long and one mile wide, connected by a causeway to the mainland. It has natural advantages as a port, i.e., no surf, and deep water somewhat sheltered by the Los Islands and by breakwaters, although the approach has to be from the South.

⁷Mouillot. Op. Cit.

The first pier was established in 1900. During the period from 1929 to 1936, important improvements were realized on funds borrowed from the federal government. In 1946, however, the total traffic was relatively low, due to the slow economic development of Guinea. (About 120,000 metric tons a year were handled; for exports and imports both.) The main equipment then consisted of several breakwaters, two concrete wharfs, with berths for only three ships at the same time.

After the war, the decision was taken to exploit the rich iron ore deposits of the Kaloum Peninsula. For that purpose, it was necessary to increase the capacity of the port of Conakry. The work started in 1951, and was partially financed on F.I.D.E.S. funds.⁹ New breakwaters were added, the banana and commercial wharves extended, and a new mineral port constructed. This "iron ore port" is directly connected by a special railway to the deposits, and has a belt conveyor which can fill a 12,000 ton ship in less than 24 hours. It is hoped to achieve an annual rate of exports of about one-million tons and a half. Eight ships of 8,000 tons have been specially built for ore transport.¹⁰ The available figures show the following exports of iron ore:

<u>1956</u> ¹¹	<u>1st semester 1957</u> ¹²	<u>1st semester 1958</u> ¹²
832,712 metric tons	558,000 metric tons	243,000 metric tons

⁹See below Chapter on "Investments"

¹⁰Harrison Church. Op. Cit. p. 300

¹¹"Britanica Book of the Year", 1959

¹²Bulletin de Conjuncture des Territoires d'outremer"

The important decrease during the first semester of 1958 is part of a general decline in exports of mineral products in the world, related to the recession, and is certainly temporary.

The financing of the whole project, including the port, has been realized by a "société d'économie mixte", i.e., part of the funds have been provided by private capitalists, but the majority belongs to the Guinean government. (The share of which has been paid on F.I.D.E.S., credits.) However, it is worth noting¹³ that one-third of the total capital invested in this vast undertaking came from the British Iron and Steel Corporation, and nearly the totality of the production is utilized in the United Kingdom.

In 1951, before the exploitation of the iron ore started, 96,000 tons were exported through Conakry port. Out of that tonnage, 50 percent consisted of bananas, and 32 percent palm products.¹³

The total traffic handled by the port reached a peak in 1938, declined considerably during the war, reached again the 1938 level in 1949, and increased since then, especially after 1952, when the exports of iron ore started.

The passenger traffic is not very important: 5,800 passengers in the first semester of 1956; 5,900 for the first semester of 1957; and 9,400 for the first semester in 1958.¹⁴

¹³Houis "La Guinée Française." p. 69

¹⁴"Bulletin de Conjuncture des Territoires d'outremer"

Traffic of the Port. (In thousand of metric tons.¹⁵)

	<u>1938</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1957</u>
Unloaded	104	140	194	206	138	--	--
Loaded	80	101	96	137	834	--	--
Total	184	241	290	343	972	1,330	1,750

Other Ports of Guinea. Benty, in the eastern part of the only other true port of Guinea. It is situated ten miles from the sea, on the south bank of the Mellacoree River, where it widens out into a drowned estuary. It is used as a secondary port for the export of bananas.

Boké, in the west, which has today an insignificant traffic could become somewhat important if the bauxite deposits of its hinterland are exploited.

2. Ivory Coast's Ports. Abidjan. If Conakry has developed rapidly, it is Abidjan that holds the record among French West African ports for the rapidity of its growth, particularly since the opening of the Vridi Canal in 1950. The Vridi Canal permitted ocean going ships to enter its lagoon for the first time. It has become one of the busiest ports on the gulf of Guinea.

¹⁵For 1938 to 1953: "Chroniques d'outre mer - Etudes et informations. For 1954: Richard Mollard. "L'A.O.F." p. 188. The tonnage of iron ore amounted to 1,050,000 tons in the total figure. For 1957: "Documents de La Revue des Deux Mondes" Nov. 1958.

The opposite of Guinea, Ivory Coast, which also depends heavily on sea transport, has no natural harbor. Until 1950, the portuary equipment was precarious and rather dangerous. Consequently, ships had to stay in the ports a very long time, getting loaded and unloaded by primitive means. This means a considerable increase in cost of goods handled, which is especially serious where competition is acute, such as in coffee, bananas and cocoa. A pier was started by a private company at Grand-Bassam in 1897 and was in use in 1901. The traffic increased rapidly, and reached 172,000 metric tons in 1929, the maximum capacity of the pier.¹⁶ Then the decision was taken to double the capacity of the harbor by a new wharf, which was completed in 1931. However, the railroad does not reach Grand-Bassam, therefore, the new wharf was built at Port Bouet, near Abidjan, but on the other side of the "sand pit". Fourteen kilometers of track link Port Bouet to the Abidjan railroad. The new wharf was better equipped, and it was connected with the railroad, so it took most of the traffic which reached a peak of 200,000 tons in 1938.¹⁷ declined during the war, increased again after the war: 250,000 tons in 1948, and 350,000 tons in 1950.

In 1950, a drastic change occurred in the economy of the country by opening of the Vridi Canal which permitted a

¹⁶Sources: Mouillot. Op. Cit.

¹⁷Ibid.

communication between the Ebrie Lagoon on which Abidjan is built, and the ocean. The wharf of Port Bouet and the old wharf of Grand Bassam were abandoned, and Abidjan became the major port of Ivory Coast.

The Vridi Canal which has been called "one of the engineering marvels of Africa"¹⁸ is 2,700 meters long (almost 1.7 mile) 350 meters wide, (984 feet) and 15 meters deep, (50 feet). A wharf already existed in Abidjan, and during the time the canal was under construction, a modern port was built. This was completed by 1953. "Immediately after the Vridi Canal was opened, traffic handled increased by over 50 percent, as compared with that handled by the old wharves."¹⁹ Further improvements were made, as it was decided to concentrate the total of the imports and exports of the country in Abidjan. Owing to the construction of a 3,281-foot long water dock, Abidjan's annual traffic should eventually reach 2,500,000 tons, including 600,000 tons of timber.²⁰ The coastwise traffic, especially through the river-lagoon system, the roads and the railroad concentrate on Abidjan, and it is expected that the economic prosperity will develop external trade, so that the important investments made in the port would be justified.

The traffic of the port has been the following: (those)

¹⁸Harrison Church. West Africa. p. 358

¹⁹Ibid. p. 349

²⁰"African Affairs" No. 15. April 1955.

figures, especially before 1951 include not only Abidjan itself, but the other ports of its "system": Port Bouet and Grand Bassam.).

Figures in thousands of metric tons.²¹ (1st Sem)

	<u>1938</u>	<u>1950</u>	<u>1951</u>	<u>1952n</u>	<u>1953</u>	<u>1954</u>	<u>1957</u>	<u>1958</u>
Unloaded	110	292	387	484	458	--	565	304
Loaded	171	285	312	297	337	--	504	342
Total	281	577	699	781	795	1013	1069	644

The passenger traffic, as it is the case for Conakry is small: 11,000 for the first semester of 1956; 11,400 for the first semester of 1957; and 12,900 for the first semester of 1958.²¹

The other ports of Ivory Coast have comparatively a very small traffic. Sassandra, at the edge of the forest belt had limited activity as the export port of the little developed western part of the country. It handled 31,000 tons in 1950 and 1951, almost balanced between exports and imports; this figure was reduced to 19,000 tons in 1952, and there was almost no traffic during the following years.²²

²¹Sources: for 1938 to 1953: "Croniques d'outre mer"
Etudes et Informations" Op. Cit.
 For 1954: Mollard, R. R. Op. Cit. p. 188
 For 1957: Documents de la Revue des Deux
Mondes" Nov. 1958.

for 1st. sem. 1958: "Bulletin Statistique de La France d'outre
mer" Op. Cit.

²²"Chroniques d'outre mer. Etudes et Informations"

However, Harrison Church notes that a wharf has just been built in Sassandra²³ to open this western region, which does not have the benefit of the Lagoon navigation, and therefore Sassandra should develop in the years to come.

The other ports of Ivory Coast are Tabou and Grand Lahou, which have only coastwise traffic.

C. Main Problems and conclusions on Ports.

1. Balancing the Traffic. A very important problem in many primary producing countries is that exports largely outweigh imports.

Such is the case for the port of Conakry, where statistics show that since the traffic soared in 1953, as a consequence of the development of the iron ore production, exports are much heavier than imports.²⁴

	<u>1953</u>	<u>1956(1st.Sem.)</u>	<u>1957(1st.Sem)</u>	<u>1958(1st.)</u>
Unloaded	138	101	113	187
Loaded	834	748	1007	551

Those figures are in thousands of metric tons.

A different trend is shown by Abidjan's traffic.²⁵

²³Harrison Church. Op. Cit. p. 359

²⁴For 1953: "Chroniques d'outre mer." Op. Cit.
For 1956-58: "Bulletin Statistique de La France" D'outremer

²⁵For 1953: "Chroniques d'outre mer." Op. Cit.
For 1956-58: "Bulletin Statistique de La France d'outremer."
For 1957: "Documents de La Revue des Deux Mondes" Nov. 1958.

Traffic in thousands of metric tons.

	<u>1953</u>	<u>1956(1st.Sem)</u>	<u>1957(all yr.)</u>	<u>1958(1st Sem.)</u>
<u>Unloaded</u>	485	293	565	304
<u>Loaded</u>	337	271	504	342

It is only for the first semester of 1958 that more goods have been exported than imported.

The main reason for such a difference must be seen in the fact that Guinean exports are heavier, much less valuable than the exports lag far behind imports.

1958 in Millions of Dollars²⁶

	<u>Imports</u>	<u>Exports</u>
<u>Guinea</u>	52	19.5
<u>Ivory Coast</u>	91	126.0

Another fact contributes to increase the lack of balance of Conakry's traffic: i.e., compared to their weight, Guinean imports are more valuable than those of Ivory Coast. This is due to the fact that Guinea imports a larger proportion of equipment goods and semi-manufactured products out of its total imports than Ivory Coast does. Especially during the last years, the important industrial projects carried on in Guinea led to the increase of the imports of light but expensive equipment.

²⁶"The Americana", 1960 under headlines "Guinea" and "Ivory Coast".

Percentage in the total value of imports of Conakry for the first semester of 1957 and 1958 are:²⁷

	<u>1957(1st.Sem.)</u>	<u>1958(1st.Sem)</u>
Raw Materials, Semi-finished	17 percent	20 percent
Goods	--	--
Equipment goods	<u>25</u> percent	<u>30</u> percent
Total	42 percent	50 percent

In Ivory Coast, during the same period, the percentages were much lower.²⁷

	<u>1957(1st.Sem)</u>	<u>1958(1st.Sem)</u>
Raw Materials, Semi-finished	16 percent	16 percent
Goods	--	--
Equipment goods	<u>22</u> percent	<u>21</u> percent
Total	38 percent	37 percent

A very good example of the increase in the value of imports which does not increase significantly their volume, is given by the increase of Guinean imports of machines and electric equipment. This increase was only 2,500 metric tons between 1957 and 1958, but in value, it was 610 million C.F.A. francs (\$2.24 million), which was a sizable part of the total value of Guinean imports.²⁸

Being richer, Ivory Coast imports a greater quantity of relatively heavy current consumption goods (beverages, flour, textiles, etc.) It also imports a much greater quantity of

²⁷ "Bulletin de Conjoncture des Territoires d'outre mer"

²⁸. Ibid.

petroleum products. We may, therefore, draw the conclusion that the industrialization of the countries is not likely to produce more balanced traffic by increasing the weight of imports. On the contrary, especially in Ivory Coast, the starting process of industrialization will lead to an increase in the value of the imports, while their tonnage is bound to diminish, as more and more consumption goods will be produced in the country, for it will be the main form of the industrialization.

2. Increased specialization of the ships. The trend toward the growing specialization of the ships in the transport of a single definite commodity is likely to be increased in the coming years, at least for primary products. We have noted that eight special cargo boats had been built exclusively for the transport of the Guinean iron ore.

Ships especially designed for the transport of bananas have been used for a long time. It has been noted²⁹ that, after the introduction of boats specialized in the transport of bananas on the West African Coast in 1935, the exports of this product increased during the following years.

There are two main reasons to believe that this trend will be increased during the coming years:

- a. Because of the unbalanced traffic, most ships have a one way freight, and therefore, it is profitable to utilize specialized boats.

²⁹Mollard, J.R. Op. Cit. p. 214

b. The necessity of cutting down drastically the costs of transport if the exports are to find a market makes it necessary to cut, to a minimum, the time spent in ports by the ships. Every day spent in port by a ship is extremely costly. Therefore, highly mechanized loading and unloading is necessary but possible, only if the ships are especially equipped for a definite type of transportation.³⁰

3. As a consequence, there is also a growing tendency to concentrate all the traffic in a few well equipped ports, i.e. Conakry, in Guinea, and Abidjan in Ivory Coast, instead of wasting time and money in loading and unloading a few hundred tons in isolated and poorly equipped ports. The main exception can be a small port in a region far from the main port, but which produces important quantities of a single commodity, and where, therefore the rule of specialization can be applied. Such is the case in Ivory Coast for the bananas' export port of Sassandra. Otherwise, all the system is oriented toward the main port: coastwise navigation, roads, and railroad all concentrate products for export.

However, few ports can specialize in every commodity, and thus, international cooperation is necessary to attain a really efficient system of transportation of imports and exports which will be of outstanding importance in the life of both countries for a very long time.

³⁰Pedler. Op. Cit. p. 123.

CHAPTER VII

AIR TRANSPORT

The special problems of climate, surface features, and unequal distribution of human settlements, mean that air transportation is bound to play an increasing role in the general system of transport.¹ As noted by Richard Mollard, "Not only do planes carry passengers and mail, but they take over merchandise traffic; on the way out, vegetables, sheepskins, fishes, frozen meat, and even livestock; on the return, canned food, drugs, insecticides, etc."²

Before the second world war, little air development was attained in the regions under survey. The two main features were the establishment of international lines between Abidjan and metropolitan France. (However, only Dakar, in French West Africa, had a first class airport.) Also, the leading role played by the military authorities in establishing landing fields, the great majority of which were primitive and unusable in rainy seasons, (as was the case for the railways.) Then, during the war, the strategic importance of West Africa led to the improvement of key air-fields.

For development purposes, the Federation's airfields were grouped in three categories of which Class A, (only Dakar) international airfields, were to be the responsibility

¹Yvan du Jonchay. "L'Industrialisation de L'Afrique Noire" Paris. Payot. 1954. pp. 197-205

²Mollard, R. J. Op. Cit. p. 165

of the metropolitan government; Class B, that of the Federal Government General, and Class C, that of the territorial administrations. During the first plan, Dakar received priority and got most of the investments made in airfields, but after 1950, changes occurred and more money was allocated to Class B airfields. Among them Abidjan was provided with fields capable of handling heavy planes and soon became either the terminal or stop-over point on regular services between France and Ivory Coast.

As part of the second plan, (after 1953) similar improvements were made on Conakry airport. The works on the Class A airports and those on the main class B, (Abidjan) were directly financed by the French Department of Public Works, while those on others were financed with F.I.D.E.S. funds.³ During the second plan, for instance, 320 million francs were spent on F.I.D.E.S. credits to improve Conakry airport.⁴

A. International Airlines.

The greater wealth of the Ivory Coast, and its earlier start in the improvement of Abidjan's airport, gave it a substantial lead on Guinea in the development of international airlines. In 1958, when Abidjan had several direct air routes between its airport and France, Conakry did not have any, and local passengers had to go through Dakar in order to fly to Europe.

³See Chapter on Investments

⁴"Chroniques d'outre mer." April, 1955, Op. Cit.

Harrison Church,⁵ outlines 1950 as the year when air transportation established itself as a major factor in West Africa. "Passenger traffic," he said, "is being increasingly taken by airlines because French ships are too slow due to many ports of call." More and more ships are going to be patronized by leisure passengers, cargo, second class mail. Yvan du Jonchay⁶ shares his opinion and emphasizes the constant decreasing costs of transportation by plane as compared with the increasing cost of other means of transportation, and the heavy cost for employers of having their qualified staff members and employees returning home for vacation on very slow boats, which thus increases the necessary time for their leaves.

Another development to be forecasted is the increasing use of aircraft for the transport over long distances of light, expensive goods for which the main economic markets arise from freshness and rapidity of transport. With the increasing standard of living in Europe and in the countries under survey, fresh fruits, on one way, Chappagne, oysters, or other luxury goods on the return way will be shipped in increasing quantity by air.

B. Internal Air Transportation.

Although many potentialities exist, internal transportation is very limited. Three aspects appear for future development:

⁵Harrison Church. "West Africa" p. 161

⁶Yvan du Jonchay. Op. Cit. pp. 211-212

1. Air Freight. We have already noted the great problems which challenge the builders of roads and railroads; the heavy investments and the insufficient yields which often result from a lack of concentration of the resources. To check those difficulties, air transport is far more flexible than any form of land surface traffic. On the other hand, it is limited by the availability of landing grounds, radio and meteorological services. "In the regions of the interior where the cost of transportation by road and railroad is too high, the cargo plane such as the 50 ton "double deck" Breguet with a 16-ton carrying capacity offers invaluable advantages: in terms of speed, straight runs, preservation of expensive, fragile or perishable goods."⁷

In Guinea, where the nature of the surface presents special difficulties, it seems that air transport could be used to a large scale to carry fresh meat from the Fouta-Jallon plateau and the Guinea Highlands to the cities on the coast, especially Conakry and Monrovia. Such a transport exists from Cameroon and Chad to the lower Congo cities of Brazzaville and Leopoldville, and has proved successful. Fresh fruits and vegetables of the regions of Guinea could also utilize such a means of transportation. For the Ivory Coast, the hinterland is less economically developed and does not offer the products. Therefore, prospects are not

⁷African Affairs. Op. Cit. No. 13, April 1955

as bright. Some cattle movements could however, take place between Upper Volta and Ivory Coast.

Although prospects are generally bright for the development of meat transportation, we must be cautious in our appreciation: "French West Africa's nascent meat industry is being built up around rapid air services, but how far this will help the development of any of the hinterland processing industries, is problematic. Most of their output is bulky and of too low a value to make air shipment a paying proposition."⁸ This suggests that in improving the quality of the product, cattle movements by air will increase.

2. Coastwise Air Traffic. There has been a recent development of a kind of "tramping" air service, or "taxi planes" as most all medium size towns have a large second class airfield. This means that planes can offer an internal transportation network. This includes, for example, the transport of seasonal workers from the hinterland to plantations or processing factories on the coast; and the transport of tourists. (The number of tourists is expected to increase in Guinea, as it is a picturesque area of Western Africa.)

3. Although some students of Western African problems⁹ suggest that the greatest future relies on an increased use of the huge, big capacity flying boats, it does not seem that

⁸Thompson. "French West Africa" Op. Cit. p. 308

⁹Yvan du Jonchay. "L'Industrialisation de L'Afrique Noire." Op. Cit. p. 198-203.

they are likely to play a major role in the future because no major plane firm is interested in making flying boats. They present many advantages, especially because they can alight on the numerous and completely free water surfaces found almost everywhere, and their capacity is almost "limitless".

C. Main Airfields. Traffic of Abidjan and Conakry.

In Guinea, there is a class B airfield at Conakry, now equipped to receive heavy planes. It has two landing tracks of 2,000 meters long, and 50 meters wide, hangars and a meteorological station. As we have seen, its development is quite recent. In 1951, its traffic was the following:¹⁰

Planes: 1,005; Passengers: 8,972; Freight: 157 metric tons; (Mail amounted to 41 tons of the freight hauled.)

In 1957, after the improvements, its traffic was considerably increased.¹¹

Planes: 2,040; Passengers: 35,000; Freight: 1,100 tons.

Kankan is the second airfield of the country. It has been equipped with two tracks of 11,600 meters on 60, a meteorological station, and an aerostation. Regular services are carried on between Kankan and Dakar, Abidjan, Kissidougou, and Conakry.

¹⁰Houis. Op. Cit. p. 87

¹¹"Documents de La Revue des Deux Mondes" Nov. 1958.
Op. Cit.

A third airfield, Labe, was a military airport. Its position in the heart of the Fouta-Jallon plateau could make it play an important role in the cattle transportation. Boko, Kissidougou, Siguiri, Macenta, N'zerekore and Karouane are the other main airports. However, they are unable to receive heavy planes.

In Ivory Coast, Abidjan is now an international airport, which can receive heavy planes, up to the 78 ton French "Armagnac", but commercial jets cannot land as yet.

For 1957, the traffic figures for this airfield are the following:¹²

Planes: 3,400; Passengers: 50,000; Freight: 2,500 metric tons.

It is worth noting that the freight handled by Abidjan is two and a half times as important as that of Conakry. The main reason is probably the greater importance of Abidjan's European population.

Bouake is the other important Ivory Coast airport. Modern equipment has been recently introduced, and a regular service established between Bouake and Abidjan. Sassandra and Man have also maintained airfields.

D. Conclusions.

Air transport is likely to play an important role in both countries during the years to come. However, today, international traffic is quite insignificant, and in spite of

¹²"Documents de la Revue des Deux Mondes" Op. Cit.

the improvements of Conakry and Abidjan airports, internal traffic is still very low. The present status of other means of transport in Ivory Coast will probably make air transport less important as a means of economic progress that it will be in Guinea. Many people forget that air transport will always be very expensive. It is not likely to make up the deficiencies of the waterways or of the roads and the railroads. "The future of air freight will depend on the amount of high-value non-bulky cargo seeking rapid transportation."¹³ Very little of the production of the two countries is non-bulky and of high value.

¹³A. Freudenberg. "Communications" Op. Cit. p. 222.

CHAPTER VIII

INVESTMENTS

Until a few years ago there was almost no formation of capital within the territories, and all investments, especially in transportation which could not yield an immediate return, depended on capital from abroad.

France, however, had invested very little in West Africa before World War, II. The general principle adopted in 1900 by the French Parliament had been that the colonies were required to pay their own way. After 1945, a drastic modification developed and French public funds were spent in Western Africa, mainly in the realms of transportation. Consequently, we are led to emphasize the differences between the pre-World War, II period, and the recent evolution, after 1945.

A. Investments before 1945.

1. The General Policy, is well summarized by Mr. Thompson's definition of "the colonial pact." "Not only were the interests of colonies subordinated to those of the Mother Country, but with only minimal aid from the latter: it was from their own resources that such economic development as has occurred, was financed."¹ However, loans from the metropole were authorized in case of emergency, at relatively high rates of interest.

¹Thompson, Op. Cit. p. 249

Therefore, the problem of investment in French Western Africa is the following: The federal government undertakes public utility construction (mostly in building railroads) through the use of forced labor, and finances them on its own budget whose chief revenues were sufficed by the head tax and emergency loans from France.

Local initiatives, on territory or "cercle"² level, tried to provide some of the means of communication necessary for economic development, also through the use of forced labor and with almost no credit, as we have seen. The great development of the road system in Ivory Coast is mainly due to the efforts of one of its "Governors"³, Angoulvent. "Most of the successes on the first hand are the result of those individual, local and temporary efforts."⁴

2. The Pattern, The Results. By far the largest investments before 1945 were made in railroad construction and port development. We have already noted the extra-economic importance attached to railroads by the colonial power. Frankel⁵ sees as widespread "in large parts of Africa, capital investment for military and administrative purposes preceded every form of economic development and exercised a

²Cercle: Administrative unit in the various territories.

³Civil administrator, named by the French Government, at the head of a territory.

⁴Bichar Mollard. Op. Cit. p. 194.

⁵Frankel. Capital Investments in Africa. Oxford University Press. 1938. p. 416.

potent influence on subsequent economic activities." Most of the investments in railways were made prior to 1920 -- Frankel estimates the approximate amount of capital invested in French Western Africa as $\text{Fr } 9.02$ million to 1920, and only $\text{Fr } 2.08$ millions from 1920 to 1934.⁶ About half of the money was spent for Guinean and Ivory Coast railways.

After 1920, roads began to share with ports, the capital equally allocated. Besides the sources of funds represented by the (very low) head tax, and some other fiscal resources increasing with the production (especially in Ivory Coast) six French loans were made to the Federal Government by the outbreak of World War II. There existed a separate French loan budget from which were financed, not only those building of roads, railroads, harbors, but also some social equipment and economic development projects (as the Niger project). Mr. Thompson⁷ notes that by 1937 the sums actually spent on such enterprises totaled 1,040,401,084 francs, of which all but 16.5 percent came from the metropolitan loans.

It appears, however, that little of those funds went to Ivory Coast and Guinea. The ports of Abidjan, and Conakry were not particularly improved before the post-war period. The roads were mostly tracks built by local funds, and the railroad had been constructed by 1920, except for the last part of the Abidjan-Upper Volta Railroad.

⁶Frankel. Op. Cit. p. 414

⁷Thompson. Op. Cit. p. 269

Many criticisms were raised against these loans, as financing them was difficult for the Federation, especially during the depression years. These loans were made at the interest rate of $5\frac{1}{2}$ percent: As matters worked out, the percent came to over 6.2.⁷ The burden of the interest was carried by all territories, while many claimed, and this was especially true of the Ivory Coast, that a burden so crushing for French West Africa was unjustified and that the expenditures authorized under the loan were not made wholly for the Federations benefit. Most investments at this time went to projects undertaken for reasons of political prestige of local interests (the port of Dakar) rather than being spread over the whole Federation.

Private capital was mainly represented by commercial companies, interested exclusively in immediate profits, investing nothing in basic equipment and exporting almost all their profits. Their actions were so dictated because there were no important mineral deposits known at that time, and therefore, there was no prospect of direct and important yields by the construction of means of transportation by private companies. Thus, the whole burden was left to the Federal and local governments whose financial possibilities were inadequate to meet elementary requirements of a modern system of transportation.

⁷Thompson. Op. Cit. p. 269

B. After World War, II, a Completely New Approach was absolutely necessary if an important economic development was to be attained,

A first condition was for France to get rid of the principles of colonial exploitation as summarized by the "Colonial pact" and to adopt a general policy of priority for African Welfare and interests over all other considerations. This was adopted in a resolution at the Brazzaville Conference in 1944, as the new trend of the French policy toward black Africa.

A second condition was the adoption of economic planning both as regarding production and distribution; while "Economic planning was conspicuous by its absence"⁸ before the war, the Brazzaville conference recognized the absolute necessity of a plan for the development of territories.

As a consequence of this "New Deal" in French colonial policy, it was decided that France would finance a very important part of the expenses necessary to provide the territories with basic equipment, develop industry, improve agriculture, raise the standards of living and the welfare of the inhabitants.

An overseas portion of the French Plan for Modernization and Equipment was established--"For the old principle

⁸"Funds d'Investissement et de Developement Economique et Social"; Fund for social and Economic Development and Investment.

⁹Thompson, Op. Cit. p.249

of colonial self-sufficiency the pain substituted state planning and state expenditure on a huge scale."⁹ As for communications, to overcome the inaccessibility of the hinterland, the plan envisaged for French West Africa a network of communications that would integrate the Federation into the economy of the whole French Union.

1. The mechanisms and Institutions. A law passed by the French Assembly on April 30, 1946 required a ten-year plan for the French dependencies and created the F.I.D.E.S.⁹ "To which France would supply funds in the form of outright subsidies through annual allocations from the metropolitan budget and to which the territories themselves would also contribute."¹⁰

At the same time, the Caisse Centrale de la France d'outre-mer (.C.C.O.M.) which had been created during the war was empowered not only to handle the F.I.D.E.S. accounts, but also to grant long-term loans at low interest rates from other funds given it directly by the government. The "Caisse" received an initial grant and it was supplemented by annual credits voted by the French Parliament. In theory it might have recourse to the open market, but interest rates were too low, 2.2 percent, and the loans too long (20 years)¹¹ so that it did not borrow from private sources.

⁹Thompson. Op. Cit. p. 249.

¹⁰Ibid. p. 253.

¹¹Ibid. p. 272.

The main objectives of the plan were to be determined by agreements between technicians, administrators, and native representatives. Which, however, depended (in final analysis) on the financial possibilities and the good will of the French Assembly, as most of the funds were raised from French taxpayers. "France was to pay one-half of the expenditure on economic development. In practice, the territories have financed the rest by borrowing on very favorable terms from the "Caisse Centrale"¹².

2. Realization of the bright prospects of the immediate program were soon to be darkened by the actual development. First, France emerged so exhausted from the war that the ambitious schemes had to be considerably reduced.

Second; then, the emphasis progressively shifted under the growing pressures in France, to the more traditional French colonial interests.

Third; the survey of resources which was to be realized before the plan started was not completed. Consequently, during the first years, an important part of the money spent was wasted on unnecessary, uneconomical, or less important works, for various political pressures had an important role in determining where the money would be spent, rather than following a plan previously developed.

¹²Andrew K. Kamarck. "The United States and Africa"; Columbia, 1953. p. 132.

The ten year plan was modified in 1949 into successive four-year plans which were far more realistic.

The first plan was designed to provide French West Africa and especially the three coastal territories of Senegal, Guinea, and the Ivory Coast with the basic equipment in the field of communications, which the authors considered a necessary step toward economic development and industrialization. Under this plan, sixty-four percent of the credits were to be spent on railroad improvement and waterways, ports, roads, and airports. The initial credits allocated for the ten-year period from 1947 to 1957 had been 135 billions C.F.A. for the whole of French West Africa.¹³ In 1947, a cut of 15 percent was decided upon.

From the funds invested during the first plan, an important part was invested directly by France into "infrastructure" works, concerning the whole federation--the main purpose was to develop means of communication basic to the French Union. The most important criterion was the strategic value of roads, airports, and ports built or improved. The decisions were taken directly from Paris and the investments realized without any intervention of local representatives. Most funds were spend on Dakar's port and airport, and as far as Guinea and Ivory Coast are concerned, they were mainly interested in the improvement of inter-territorial roads or the main internal routes.

¹³Thompson. Op. Cit. p. 255.

Most funds however, were invested on a Federal or territorial basis. Specific projects were proposed by local authorities and technicians of the FIDES committee, and their utility as well as the overall return they would yield were then examined. To receive the benefits of the FIDES funds, they had to contribute to the basic equipment of the territories; maintenance costs were always to be carried by local budgets.

During the first four years' plan, which actually extended over a five-year period, from 1947 to 1952, the investments were as follows:¹⁴

FIDES investment on funds granted by France: \$224 million

(64 percent being spent on transportation)

Participation of the Federation in the Plan:

For social equipment: 18 million

For economic equipment (Over half for transport): 52 million

Participation of the various territories

in the plan: 52 million

TOTAL: \$346 million

Out of these 346 million dollars, the amount spent on transportation was roughly 200 million dollars.

¹⁴Delmas. "Les Plans d'investissements Economiques et Sociaux en A.O.F." in Industries et Travaux D'Outremer. Feb. 1957.

It is difficult to know what has been the share of each territory, because, even when a project was basic to only a single territory, the accounting work was made on a federal level. However, the coastal areas, namely the three territories, Senegal, Guinea, and Ivory Coast received the bulk of the money, because there were more likely to develop export crops along their coastal belts. In Guinea, an important road program was carried on, and the improvement of Conakry port was started. In Ivory Coast, besides the improvement of the road network, the two major realizations were the opening of Abidjan port and the modernization of the railroad.

The second plan, over the period from 1952 to 1956, gave a great importance to communications also, but instead of rather broad and ambitious projects which, for their major part would not pay for their maintenance costs in a long time, there was a marked shift toward more local oriented projects, which would yield an almost certain and immediate return. Three classes of investment were distinguished in this second program.

Those concerning works of strategic importance for the whole French Union, mostly airports, were directly paid from the French Budget. Under a "common section" were placed the investments basic to two territories or more, and finally, there were territorial projects which received the most attention and got the major part of the money.

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is missing.

all origins spent for projects interesting exclusively each country between 1947 and 1957 was:¹⁶

In Guinea: \$ 78.7 Million

In Ivory Coast: 109 million

The contribution of the French FIDES grants in the territories was the following:¹⁷

In Guinea: \$50.8 Million

In Ivory Coast: 76.4 million

These figures are quite significant and the money spend allowed extremely useful realizations: especially the Port of Abidjan, the development of the Lagoon system in Ivory Coast, the modernization of the railroads, the improvement of the port of Conakry, the development in both countries of a good road and highway network. It should be commented that some works, especially those achieved during the first plan, failed to yield important returns in a short period of time. As the maintenance costs were to be carried by the territories, complaints arose, mainly in Guinea against the supplementary burden for the country, which was not offset by a proportional increase in the economic activity. In 1953, the finance committee of the Federation reported that by 1957, for the whole Federation, the additional revenues from works carried out under the plan would fall short by \$5.6 million of meeting the operating costs.¹⁸

¹⁶Source: Americana, 1960 - Op. Cit.

¹⁷Source: Delmas, Op. Cit.

¹⁸Ibid.

On the whole, it seems after the creation of additional transportation, the additional production in Guinea and in Ivory Coast, realized in those countries have been largely profitable, and the yield therefore, is sizable, especially when we consider that most of the capital invested has been a free gift.

3. Local Sources of Financing. Although the formation of capital is low in Western Africa, in the richest territories, especially Ivory Coast, but also Guinea, some investments in the fields of transportation are possible. The territories and Federation's participation¹⁹ in the plan has been noted above. We have already described the role of the road funds instituted in 1952. Each territory received as part of the yield of a tax on fuel, refunded on a basis of fuel consumption. In Ivory coast, where this consumption was high, the funds provided were quite significant, (over \$2 million a year). They could be used by each territory for whatever project it needed, provided that project be the realization of some lasting work on roads.

Also, in Ivory Coast, a coffee-cocoa association raised money for the building and maintenance of roads in the regions where those commodities were produced. A road for coffee was constructed in west Ivory Coast from Mangagnou, a road for cocoa from Abidjan to Abengourou.²⁰

¹⁹See "Road Transportation." Op. Cit.

²⁰I.F.A.N. Op. Cit. p. 53.

The African savings are important on the Ivory Coast, and provide for an increasing part of the vehicles used. Not only do Africans buy cars, but most of the trucks belong to local farmers, owning 1,022 trucks and operating them. However, the question arises as to whether there is not a waste in the use of those savings. The ownership of a private car is a costly luxury in an underdeveloped country, and the rapid increase in the number of private cars, although it shows economic prosperity, certainly prevents local investment in basic industries and equipment.

Lastly, Richard Mollard,²¹ notes the role played by the F.E.R.D.E.S. (rural equipment funds for economic and social development.) Those funds finance small works of rural communication, bridges and roads etc. They are financed for one-third by the general budget, one-third by local (territorial) budget, and one-third by the interested collectivity, (which can provide workers, materials etc. rather than cash). Twelve million dollars worth of work had been realized through these funds in 1954 and their role was increasing.

4. Private Investments. In the field of transportation these are likely to occur when the enterprise is on such a scale that the costs of transportation can be considered a complete part of the whole. The goods will usually be bulk ones; therefore, the tendency is to restrict private investments practically to mining enterprises.

²¹Mollard. Op. Cit. p. 215

It is only in Guinea that such circumstances occur, and there the iron ore mining company has had to build its own port and its own five-mile railroad track, although, in Guinea, the bauxite of the Los Islands is directly shipped through the installation of the mining company. When one studies the costs involved in the aluminum project at Fria, it is important to remember that the international investor's trust included the cost of a new railroad and of a new road in his expenses. In Ivory Coast, as most production is agricultural, all investments must be public, except for transportation from a plantation to a necessarily very close road.

5. International Investments in Public Transportation.

As the yield of most investments is extremely doubtful, very few funds have been invested outside of France. The international Bank granted a loan of \$7.5 million for the improvement of F.W.A. Railroads. This loan was guaranteed by France.

It is worth noting that, of the funds provided by the Marshall plan, a substantial part were transferred by France to West Africa.

As for the future, it is obvious that both Guinea and Ivory Coast will depend upon their own resources for most investments in the field of transportation. Strictly economic criteria will have to be adopted, the potential yields within a relatively short period of time carefully computed. Outside some specific mineral projects in Guinea, the prospects are much brighter in Ivory Coast than Guinea.

CHAPTER IX

ECONOMIC DEVELOPMENT AND TRANSPORTATION.

William Hance, in "African economic development" quotes Lord Ivgard's statement. "'The material development of Africa may be summed up in one word--transport.'" Although this statement is too absolute, there can be no serious doubt that improved transport and communication are fundamental to all other types of development."¹

Transportation determines economic development in many ways. On one side of the economic organization, it induces further development of existing production by reducing the costs of transportation and therefore making the products more competitive.

On the other hand, once potential developments have been located, transportation shows the way to make them become realities.

In between, there is a cumulative effect of the development of transportation which creates both new needs and supplementary means of satisfying them.

In Guinea and Ivory Coast, the role played by transportation in economic development is first to allow an appropriate specialization of labor by providing the means for shifting people to the areas where resources exist, bringing there the food stuff that they need, which in turn, enables the development of a market economy.

¹Hance, William. African Economic Development. p. 85

A. Transportation and Labor. Labor problems in Africa are extremely difficult to solve. The unequal distribution of the population, the low output per man, due in part to lack of education and training as well as to the unfavorable climate and health conditions create a constant shortage of labor in the rich areas. While in some other places, the primitive state of the agriculture and the poor soils create a real "overpopulation" despite the low density per square mile.

Labor shortage is particularly acute in the rich southern belt of the Ivory Coast. "Although one third larger than the neighboring Ghana, the Ivory Coast has only one half the population."² To overcome the effects of this low population, the railroad track has been completed to Ouagadougou, in Upper Volta, and carries some 21,339 passengers going from Ivory Coast to Upper Volta, but 47,205 going from the Upper Volta to the Coast.³ By 1956, there were some 320,000 northern laborers working on the Ivory Coast.⁴

In Guinea also, the most populated areas are often those which are less likely to have an important production. On The Fouta Djallon "oddly enough, it is the highest areas which are the most densely peopled by the Fulani: who were attracted

²Harrison Church. Op. Cit. p. 344.

³"Chroniques d'outre mer." Op. Cit. April, 1955

⁴Thompson. Op. Cit. p. 443

⁵Harrison Church. Op. Cit. p. 285.

by the healthy conditions and pastures."⁵ While there is a slight shift of the population toward the coastal plain, as shown by the growth of Conakry⁶ on the whole, the situation is rather the opposite of that in Ivory Coast. People from Upper Guinea move every year to the peanut lands of Senegal, and Gambia; the number of these migrants has reached from 40,000 to 45,000 a year since 1946. Thompson⁷ notes that Guinea's unemployment problem has been partially improved and that more opportunities for wage earnings exist now than before the war. "Since the Plan was formulated in 1946 and a program of local development works undertaken, the policy of the northerly territories has been to keep as many laborers as possible at home. (To this end, free round trip tickets previously provided to migrant workers going to Senegal was suppressed.)

On the other hand, Ouagoudougou (on the Upper Volta) has an official bureau to centralize the recruitment of laborers for the coast (mostly going to the Ivory coast) and, in conjunction with Air France, it has organized plane transport for them.

Therefore, we can summarize the relationships between labor problems and transportation as resulting in two opposite effects.

⁶13,600 inhabitants in 1939; 52,400 in 1951

⁷Thompson. Op. Cit. p. 493

The growth of transportation by developing resources of local centers and giving them some chance to reach a market by lowering the costs of transport, contributes to establish population centers of medium importance and therefore check the rush toward the cities.

At the same time, it makes this rush much easier (by providing fast transport) and it hastens the pattern of concentration by increasing the needs for labor in the most developed areas, necessarily near the coast.

At the same time, the development of transportation provides the necessary means of supplying the growing needs of the developing interior specialization. In the coastal plains of the Ivory Coast and in the "banana triangle of Guinea", most of the lands are utilized to produce export goods which are preferred because they produce cash (often hard currency, and therefore are encouraged by the administration). In return, basic foods are neglected and they must be produced in other regions, and then shipped to the cities and the plantations.

In Ivory Coast, for example, yams (the basic food of most of the country) are produced, and also cassava and plantains, in the north and the center of the country and are shipped to the southern coastal belt to feed the workers producing "rich" crops for export.

Perhaps still more important is the transportation of meat from the cattle raising areas to the coastal belts where

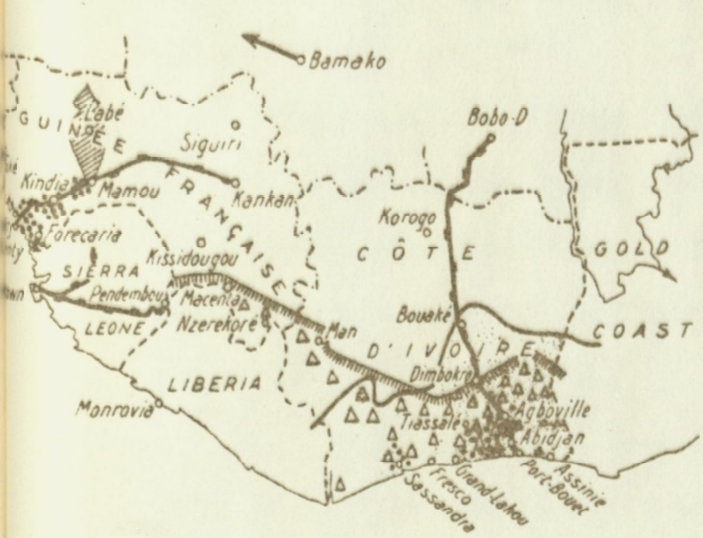
cattle cannot be raised because of the Tsetse fly. In Guinea, important trade routes have been established between the Fouta Djallon plateau and the coastal plain, especially Conakry. The cattle are killed in a slaughterhouse in Mamou and shipped by train to the markets of lower Guinea. In Ivory Coast, the railroad handles important traffic between the cattle raising areas of Upper Volta around Bobo Dioulasso and Ouagadougou and the coastal cities and plantations. In 1954, the Mossi railroad transported from Upper Volta to Ivory Coast 19,133 cattle and 43,280 sheep. Therefore, the development of transport allows:

1. An increase in the production of the existing crops.
2. The development of new crops, both staple food and export produces.
3. An increase in the number of wage earners.
4. The development of a monetary economy, at the same time breaking the old tribal situation of self-sufficient agriculture.
5. A wider and more interdependent Economy.

B. Transportation and Agricultural Development.

Both the Guinean and the Ivory Coast economies are extremely dependent on the export of agricultural products. The size and the value of agricultural exports determines the prosperity of the countries, and is the major factor of any future economic development as was reported by Jacques

⁸Source: "Chroniques D'outre mer" Op. Cit.



LOCATION OF MAIN AGRICULTURAL PRODUCTIONS FOR EXPORT IN GUINEA AND IVORY COAST

FIGURE 9

Richard Mollard:⁹ "The exportable agricultural products are by far the major resources of western Africa. They show the economic privileges of the "outside sector". As a matter of fact, almost everything comes from regions less than 180 miles from the coast, first of all because of transportation."

Pedler¹⁰ also emphasizes the role of the transport system: "The cost of transport of export produce determines the size of the area within which, if the other necessary factors exist, such as soil, climate, etc., produce will be grown for exports; it therefore, to some extent, determines the volume of the crop."

In summary, it is the value of the product as compared to the weight which plays a major role in determining the relationship between transport and production. The type of commodity and the difficulties of handling it is also to be taken into consideration.

1. Guinea. For a very long time, Guinea's main export, both in weight and in value has been bananas. Today, coffee exports are more valuable, and mineral exports represent a larger tonnage, but banana production is still a basic element of the Guinean economy.

Bananas are a relatively low-value, bulky product and therefore their production depends upon available inexpensive transport to a very large extent. For that reason,

⁹Richard Mollard. Op. Cit. p. 204

¹⁰Pedler. Economic Geography of West Africa. London. Longmans-Green, 1955. p.125.

and because the type grown in Guinea is delicate and requires careful handling, railroad transport is the best means of shipping bananas to the exporting ports, therefore, banana production has been heavily concentrated near the railroad. The importance of transport extends to sea transport, as shown by the very significant increase in exports after 1935, when specialized boats were introduced for the transport of bananas to European markets.

At present, there are over 11,000 acres under bananas in Guinea, the main area is within the triangle Ouassou-Benty-Mamou. Commercial production started first in valleys on the Futta-Jallon, where the production conditions are better, but the cost of transport to the port is higher.¹¹ On the coastal plain, conditions are far less satisfactory, but "transport is quick and easy"¹² and so new plantations are being set up here rather than in the highlands. The main locations of the banana area, therefore, are along the railroad between Mamou and Conakry, and around Benty, east of Conakry, which is "easily accessible to banana boats up to about 8,000 tons and has no bar."¹²

Exports started during the first world war, became sizable around 1930, increased very much after 1935, as noted,

¹¹Harrison Church. Op. Cit. p. 293

¹²Ibidem. p. 284

they were considerably restricted during the war and after 1946, reached 60,000 to 80,000 metric tons a year for the last years, depending on the climatic conditions and the demand of the foreign markets, especially the French market. The figures for exports are the following:¹³

<u>Year</u>	<u>Metric Tons</u>	<u>Year</u>	<u>Metric Tons</u>
1920	266	1937	55,000
1925	1,534	1938	54,765
1930	9,133	1943	233
1934	26,075	1947	26,545
1935	30,908	1952	62,000
1936	45,054	1954	83,251
		1958	64,908

However, even though these are impressive figures their relative importance has declined. In 1958, banana export amounted to about 20 percent of the value of the Guinean exports, as compared to 50 percent in 1954.

The leading export product of the country in 1958, accounting for about 40 percent of the total export value was not even mentioned in the 1951 figures: it is coffee. The development of its production is a striking example of the importance of transport.

¹³Sources: For 1920 to 1938: Harrison Church. p. 242
Op. Cit. For 1938 to 1958: Richard Mollard. p. 215

The introduction of coffee is directly related to the opening of the Guinean Highlands, in the northeastern part of the country by an efficient system of road transport. In this region, the soil is fairly rich, and staple food, especially rice, as well as cash crops, mainly coffee, are possible. Unfortunately, all development was prevented for a long time by the lack of adequate transport. "Until recently, the French attempted to route traffic from that part of Guinea lying behind Sierra Leone and Liberia via Kankon and Conakry, despite the much greater distance involved."¹⁴ Recently, a change was introduced in the French policy, and a series of roads was built to shorten the distances to the coast and reduce the cost of transport. For the western part of the region, a good road was built from Kissidougou to Mamou, where it is connected with the railroad, instead of having to go to Kankon. Another road was built from Macenta to Freetown, in Sierra Leone, through which some products are exported. The most significant road was between N'zerekore in Guinea, and Monrovia in Liberia. "From parts of Upper Guinea, this gives access to the port of Monrovia by 200 miles of roads, instead of 150 miles of road to Kankon followed by 410 miles of railway to Conakry."¹⁵ The road was opened in 1951, and as early as 1952, 15,000 tons of rice and palm kernels were shipped to Liberia, and coffee

¹⁴Hance. Op. Cit. p. 133

¹⁵Pedler. Op. Cit. p. 113

plantations were started.¹⁶ The exports of coffee reached 7,000 tons in 1955,¹⁷ and 10,264 metric tons in 1958.¹⁸

Today, palm kernels are the second by tonnage and the third by value of the agricultural exports. On the coast, large plantations around Boke and Boffa send their products by road to Conakry. The greatest prospects of the future, however, is in the Guinean Highlands, where the construction of the road from N'zerekore to Monrovia has made possible a vast increase in the exports of kernels from that region. In 1958, 19,371 tons of palm kernels were exported from Guinea.¹⁸

The other agricultural exports are mainly pineapples and citrus fruits. Both provide an example of the adaptation to conditions of transport. Exportation of citrus fruits has been experimented with before the war, but the costs of transport to Europe were too high. Therefore, they have turned to processing the fruits, especially to produce orange essence, which is a heavy value product and is used by perfumers.

Pineapples are grown near the railroad around Kindia, and on the coast. Here again, it is the processed product which is exported instead of the fresh fruit to France, because of cost.

¹⁶Hois. Op. Cit. p. 65

¹⁷Harrison Church. Op. Cit. p. 294

¹⁸In Americana. 1960. Op. Cit.

B. Ivory Coast.

Ivory Coast today is one of the richest countries in Africa. Its development is extremely recent, for during a long time, the country could not be exploited because of the difficulties of the penetration. Ivory Coast indeed had two major defects: It did not have any good natural port, and the rain forest along the coast was almost impenetrable.

"Few, if any, territories in West Africa were so isolated by hostile coast, useless rivers, and dense forest."¹⁹ But, the same author adds: "Yet no land has been so much changed by man's communications, and the Vridi canal ranks as one of the engineering marvels of Africa."

The outstanding influence of transportation is revealed by the extremely unbalanced concentration of the agricultural production for exports in the coastal area, up to 120 miles from the sea, while the hinterland has still a primitive self-sufficient agriculture.

The southern belt owes its development to the conjunction of several favorable factors:

The geographical conditions favorable to rich crops.

The efficient and modernized railroad.

The well developed road network.

The coastal rivers and lagoon system.

The opening of Abidjan to ocean-going ships.

The most important production of Ivory Coast by value, is coffee. It started in the 1920's in the forest in the East,

¹⁹Harrison Church. Op. Cit. p. 358

but rapidly extended with development of the roads, and coffee is now produced from the Man Mountains to the Ghanaian border. The present main areas of production are:²⁰

Near the north-south railroad and road systems at Boauke, Dimbokkro and Agboville.

Around Grand-Lahou, linked to Abidjan by a road and the lagoon system.

Along the new highway from Man to Gagnoa and Abidjan, which has been built for its major part with the funds raised by the "coffee and cocoa association", and is called "The Road of Coffee". Man, Daloa and Gagnoa; and around Abengourou which has been also recently linked to Abidjan by a road financed by the funds of the "coffee and cocoa association". The production has increased steadily after the second world war, although it seems somewhat stabilized now. The coffee is sold in the protected French, but also in the American market.

Cocoa is the second by value of the Ivory Coast exports, and depending on the years, accounts for one-third to one-fifth of the total exports. The price of cocoa shows wide variations from year to year, but generally it is lower than that of coffee, and therefore, the distance to the exporting port and the cost of transport will have more influence on the area of production than is the case for coffee.

The main production districts are around Abengourou, linked to Abidjan by the new road we have mentioned, and

²⁰Harrison Church. Op. Cit. p. 354.

around Dimbokro, on the railroad. These two districts account for half of the production. All cocoa is produced in the eastern region, and the area under cocoa does not extend in the West farther than Gagnoa.

The production was already very important before the war, and after a sharp decline during the war, it revived with the peace. Present figures are below the potential production of the coming years, because of an unfavorable world market, and because the new trees planted after 1947 and 1948 are just beginning to produce.

The figures for cocoa and coffee exports for selected years (in metric tons) are the following:²¹

<u>Years:</u>	<u>1938</u>	<u>1945</u>	<u>1949</u>	<u>1951</u>	<u>1952</u>	<u>1954</u>	<u>1958</u>
Coffee	14,479	39,205	61,913	62,900	71,381	114,910	112,505
Cocoa	58,729	26,943	56,195	55,477	50,221	52,704	46,333

In 1958, the value of coffee exports was \$75 million, and that of cocoa exports \$26 million.

Bananas have been a small part of the total Ivory Coast's exports. Production lagged far behind that of Guinea until very recent years, when a very significant increase took place. "Because of the fragile and perishable nature of the products, what concessions were in the Ivory Coast were located near the railway, roads or lagoons in the Abidjan

²¹Sources: For 1938 to 1954: R. Mollard, Op.Cit. p. 210
For 1958: The Americana, 1960.

district and the Agboville district from which the distance to the port is small. However, there are developing areas around Gagnoa and around Sassandra, served by the wharf at the latter."²² Therefore the recent increase in exports of bananas is due to the direct shipment of the western production by the wharf at Sassandra, and the opening of Abidjan and its lagoon system which provides the indispensable cheap transport for this relatively bulky product.

The exports figures are the following:²³

1939:	14,285 Metric Tons.	1952:	17,991 Metric T.
1948:	15,000 Metric Tons.	1954:	20,939 Metric T.
1950:	22,965 Metric Tons.	1958:	46,129 Metric T.

Even more directly related to the improvement of the transportation system is the increase in the exports of timber.

"It is reported that there are probably greater stands of useful timber in the Ivory Coast than in any other west African territory, and they are the nearest to Europe."²⁴

The main problems of exploitation are those of labor and transport. Exploitation began this century, and at first was mainly confined to the lowest navigable reaches and along the lagoons. Logs were floated to Assinie, Grand-Lahou and

²²Harrison Church. Op. Cit. p. 355

²³Sources: For 1938 to 1954: R. Mollard. Op.Cit. p. 215
For 1958: The Americans, 1960.

²⁴Harrison Church. Op. Cit. p. 355.

to Grand-Bassam; with the opening of Abidjan port, together with the opening of the Assinie canal in 1954, it was possible to float the logs from the rich timber cutting area around Aby Lagoon to Abidjan, and there was a considerable increase in timber shipped.

The exports figures are the following:²⁵

1948: 40,533 Metric Tons	1954: 131,501 Metric Tons
1951: 130,000 Metric Tons	1958: 402,178 Metric Tons
1953: 127,621 Metric Tons	

In 1958, the value of hardwoods exports reached \$13 million, and timber ranked third among exports.

To summarize the main aspects of the relationship between transportation and agricultural exports in Ivory Coast we note:

. All exports crops are produced within a region less than 150 miles from the sea.

. Banana growing areas and timber cutting districts are always at a very short distance from the port, or along a waterway.

. Coffee and cocoa, although more widespread are produced where there are good roads, or near the railroad and along the waterways.

.The opening of Abidjan port and of the Assinie canal have had a major effect on extending the development of exports, while the less developed southwest and west are being opened up by the wharf at Sassandra.

²⁵Figures: 1948 to 1956: R. Mollard. Op.Cit. p. 208
1958. The Americana, 1960.

C. Industrial Development.

Both countries are still in the early phase of their industrial development, but the outlook is different in Guinea and Ivory Coast.

In Guinea, besides the development of "light" industrialization, based on the processing of foodstuffs before exportation, there has been the normal processing of imported goods in the port of entry (Conakry) for shipping through the country. The fabrication of various types of consumption goods for the satisfaction of local needs is developing. However, a new "heavy" industrialization is starting, based on the transformation of raw materials, only aluminum today, possibly iron ore later. In the first cases, transportation is the major factor; in the second case, transport is only a derivative factor; the main factors are the existence of mineral deposits and the potential of cheap hydroelectric power.

In Ivory Coast, only the first type of industrialization has occurred, concentrated at Abidjan and to a certain extent at Bouake.

1. Guinean prospects and realizations.

The major feature of the "light" industrialization in Guinea is the processing of foodstuffs. The food processing is strictly for local consumption. However, the extremely high cost of transporting consumption goods through the country is likely to induce not only the development of processing industries at Conakry, which is favored by its position as a

main import and export, but also is encouraged in other centers of consumption, especially in the Niger plain. As soon as a product is relatively bulky, the cost of the internal transport is greater than the price "C.A.F." of the imported product in Conakry port. In such a case, the fabrication of the product at Conakry or in Europe or America does not reduce much of the local price. Such is the case for cement;²⁶

The various parts of the cost of cement sold for 100 percent at Kankan in 1954 were as follows:

Price F.O.B.:	22 percent
Assurance-Freight:	8 percent
Price CAF at Conakry	30 percent
Duties and Taxes:	11 percent
Internal Transport:	44 percent
Commercial Expenses:	15 percent
Total Cost:	100 percent

With a cost of 44 percent per sack, there are obvious reasons to produce the commodity as close as possible to where it is utilized.

In the case of the more elaborated commodities, on the contrary, the cost of the internal transport is only a small

²⁶Capet Marcel: Traite D'Economie Tropicale. Les Economies D'A.O.F.? Paris, Librairie Generale de Droit et de Juris prudence, 1958. p. 136.

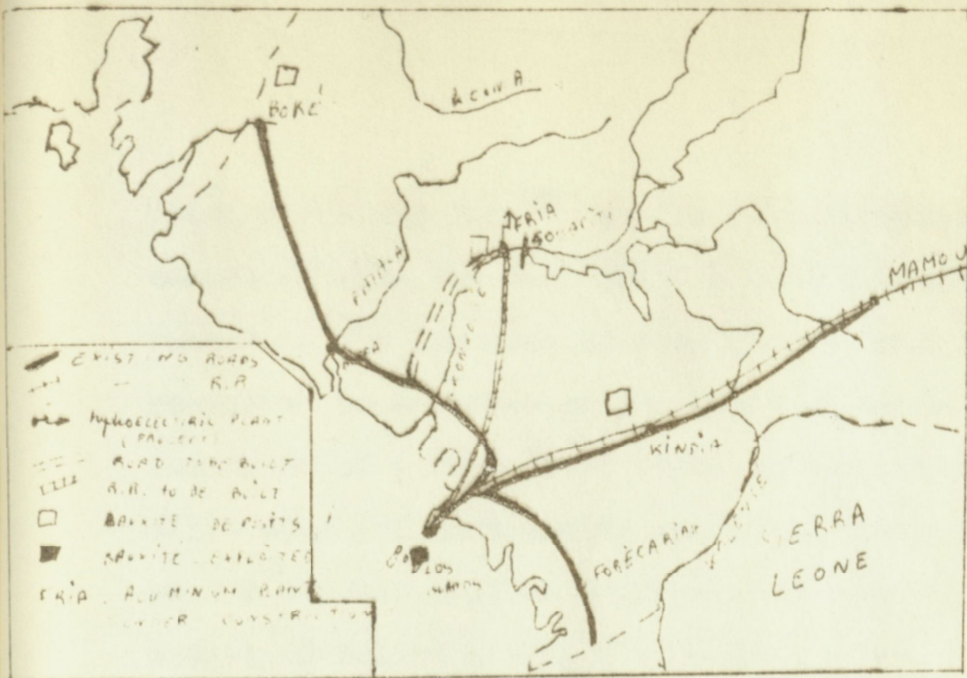
part of the total cost. Therefore, it is much more profitable to buy such items for current use in an industrialized country. An example parallel to that of cement, and concerning some types of household furnitures shows the

difference: Price. F.O.B.:	64 percent
Assurance Freight:	6.6 percent
Price C.A.F.:	70.6 percent
Duties and Taxes:	14. percent
Internal Transport:	8.3 percent
Commercial expenses:	7.1 percent
Total	100. percent

But what is expected to transform the Guinean economy entirely, is the completion of the Konkoure dam and the building of a huge aluminum plant on the southern Fouta Jallon. The total amount of investment, which includes the creation of a city of 7,000 inhabitants, (Fria) and the building of a road and a railroad have been estimated at between 40 billion francs,²⁷ or 50 billion francs.²⁸ The project was scheduled to be finished in 1960, and the production would be 480,000 tons a year, which could be increased to 1,200,000 tons when it reaches its full capacity. In a further stage, an aluminum plant would be built, to produce 150,000 tons a year; the supplementary cost would be 120 billion francs, for the

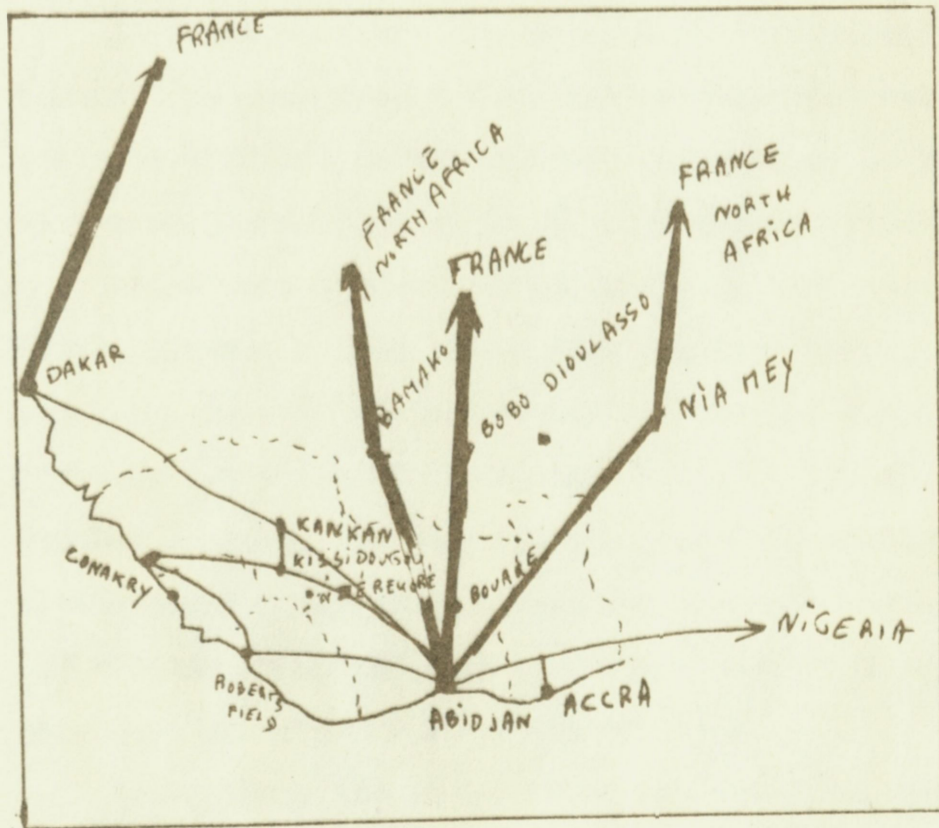
²⁷Du Jonchay. Op. Cit. p. 170.

²⁸More Recent estimate in "Documents de La Revue des deux Mondes" Nov. 1958.



GUINEA.
 INDUSTRIAL DEVELOPMENT
 PROJECTS
 AFTER "DOCUMENTS DE
 LA REVUE DES DEUX MONDES"
 NOV. 1958.
 SCALE NOT MENTIONED

FIGURE 10



AIR TRANSPORT
IN IVORY COAST
AND GUINEA
 — INTER-CONTINENTAL SERVICES
 - LOCAL SERVICES

AFTER "DOCUMENTS"
 DE LA "REVUE DES
 DEUX MONDES".
 NOV. 1958

FIGURE 11

plant and a new dam.²⁹ As for transportation, we are mostly concerned with the fact that in such a project, the main factor is the low cost of electricity, and the cost of transportation is computed on the basis of an initial investment (creation of a road of 40 miles to link Conakry, about 150 miles away and then normal operating costs.) The impact of such a project will be extremely important for the total budget of Guinea amounted to slightly more than 6 billion francs in 1952. The new means of transportation could foster the development of additional production in that region.

In addition there are other bauxite deposits and hydro-electric sources around Boke and near Kindia, and these could be utilized in the future. Especially at Kindia, near to the railroad there might be a future center of production.³⁰

As we have already noted, there is iron ore of the Kalcun peninsula five miles from Conakry which is directly exported, as well as the bauxite of the Los Islands also directly exported, (500,000 tons a year). In the case of the Los Islands, the exceptional site has permitted the exploitation, for the actual reserves are not very important, (10 million tons) and would not have justified the costly construction of means of transportation.

Altogether, the major factor in favor of the industrialization of Guinea is the abundant hydro-electric potential,

²⁹Ibid.

³⁰Harrison Church, Op.Cit. p.296

along with the natural resources. Two main things can be foreseen: large investments on aluminum, and possibly other transformation, and a growing development of industry around Conakry, from which the production would be shipped.

2. Ivory Coast. The light industrial development of Ivory Coast is quite significant, as emphasized by the IFAN.³¹ However, except for the sawmills and the industrial center of Bouake, all industries are gathered around Abidjan, which makes easier the supply and shipment of production to consumers. A primary group of industries processing agricultural products before exportation is already related closely to the activities of the Abidjan port. There are pineapple canneries, and palm oil, cocoa butter and coffee are processed. A second group processes imported raw materials and then ships them within the country and in a few cases re-exports them, but it seems that the greatest development would be reached by supplying the growing demand of the internal market, rather than exporting most of the products. The only other industrial center is Bouake with sisal processing factory and a textile industry.

Altogether, it seems that industrial development is likely to become an important factor in the Ivory Coast, but for a long time, the leading sector will be agricultural production; industrialization will reflect the agricultural prosperity rather than being an independent entity.

³¹IFAN. "Presentation de La Cote d'Ivoire." Op. Cit. p. 54-56.

2. Changes and Outlook. It seems that the impact of transportation has been much more important in Ivory Coast than in Guinea. The transportation system, especially roads and the coastal river-lagoon system, is much more efficient and developed in the Ivory coast and this country is developing faster. In Guinea there has been less development and the future depends mostly on ambitious projects of foreign origin, of which the impact is difficult to appreciate as yet. The economic development of the Ivory Coast is shown by an urban growth, which can be seen in Bouake, the population of which soared from 3,000 in 1936 to 40,000 in 1954.

But Abidjan increase/also with an amazing speed; in 1936, there were 17,000 inhabitants; In 1947, after the war which drew to the city many peasants, there were 50,000 inhabitants, and in 1954, 3-years after the opening of the port, 100,000, among which were 7,000 Europeans, and today there are over 125,000. There is a continuous flow of workers coming from Upper Volta or the northern part of the country, looking for jobs in this busy city. Some scholars emphasize the dangerous aspect of the urban growth: artificial activities (i.e. the commercial and financial activities of the in-between men are more numerous than necessary), price inflation, then transmitted to the country. Richard Mollard³² underlines the danger of concentrated industrialization. It is obvious that there are dangers, but on the

³²Richard Mollard. Op. Cit. p. 227.

other hand, the country could afford only one good port, and therefore, it is difficult to prevent the development there. However, by staying in cities people learn the mechanisms of modern economic life, and therefore, are able to work at economic tasks.

In Guinea, the development is slower, but seems to be based on basic equipment and heavy industry. Perhaps, in the long run, a harmonised growth will be possible; nevertheless, the lower degree of development of transportation has reduced the development of a market economy. Self sufficiency is still the goal of most people, and therefore it will be difficult "to make possible the entry of African people into the modern type of economic development."³³

Conakry's population does not show the tremendous increase of Abidjan; 13,000 in 1936; 33,000 in 1946, and 52,900 in 1951.³⁴ Kankan, the second city in the country, has about 20,000 inhabitants.

³³In "Africa South of the Sahara" by the "South African Institute for Foreign Affairs," p. xxiii.

³⁴Harrison Church. Op. Cit. p. 284

CHAPTER X

TRANSPORTATION POLICY

All through our survey, government policy has been an important factor in the development of transportation, and therefore in the economic development. In this last chapter, we will try to outline the main aspects of this policy.

A. The Colonial Era.

The period extending from the early French occupation to the last years before World War II could be summarized in two words: Illusions and Administration.

Illusions: Because the main African empires had developed in the interior while the coastal populations were very backward, there was a general belief that "fabulous wealth" existed in the Sudanese zone, and the main problem was to reach that zone from the coast where the first European settlements had been established.

Administration: The development of transportation was necessary to discover the country and firmly establish a political domination for the European and at the same time the railroad was necessary to strengthen the positions of each European power against colonial rivals. Therefore, "the railways of French West Africa were in the

first instance designed for strategic purposes."¹ Last, the railroad had to link together the various territories of the huge French West Africa region and therefore sacrifice the interests of a single territory to those of the whole Federation. Altogether this does not provide a sound basis for the development of transport as a means of economic development.

As there were no important rivers that were navigable from the coast to the hinterland which could be used for penetration, at that time the economic development of the Sudanese region could be envisaged only in terms of railways, so a grandiose scheme was conceived for "the building of a network of tracks from the coast converging at the Niger River."² That is why the Guinean Railroad is called Conakry-Niger and the railroad in Ivory Coast is called the Abidjan-Niger (although it does not actually reach the Niger River). But, as we have seen, this section of the Niger has very little economic interest. "The French planned to use the upper and middle Niger as the major axis for transport in the steppe area of French West Africa, but it is no longer considered practicable."³

¹Lord Hailey. Op. Cit. p. 1536.

²Thompson. Op. Cit. p. 292

³Hance. African Economic Development. p. 104

The consequences are the existence of a series of separate lines running from the coast to the hinterland through regions of extremely limited economic interest.

Furthermore, "at that time, railroad construction could be undertaken only by a few military engineers, who were then in the country."⁴ Consequently, the routes chosen were those presenting strategic importance, rather than economic, considering both local and international problems. We have already noted the problem in Guinea where the easiest route for a railway is on the boundary with the north-eastern part of the British territory, Sierra Leone. In Ivory Coast, however, after considering the construction of the railroad from Grand Bassam to Kong, (in the north-eastern part of the country) which was then an important trade center, a study of the terrain showed the inadvisability of building a rail-line through this underpopulated area of dense forest. So, in 1902, Abidjan, the site of Ivory Coast's future deep water port, was chosen as the point of departure. Consequently, the railroad offered some economic possibilities in its lower portion. Another consequence of the role of the army in the building of the railroads has been the fact that the railroads had to be built as rapidly as possible, and as cheaply as possible. We have already mentioned the technical

⁴Thompson. Op. Cit. p. 292

and economic consequences of such a policy; narrow gauge, steep gradients, single track, sharp curves and slow traffic, and consequently little economic value.

As for roads, Thompson summarizes the road building policy as follows: "Just as French West Africa's railroads were designed to link the coast with the navigable portions of the Federation's two main navigable rivers, so its road system was later developed either as a prolongation of the railroads or to connect various sections of the rail network".⁵ Of the other roads, most depended on local initiative, and there too, Ivory Coast had the advantage over Guinea of being governed by Angoulvant for many years. Angoulvant was strongly road minded and with forced labor built up an important network of tracks and roads before the Second World War.

In port constitution, the "pay your own way" policy delayed the building of modern ports considerably. The need was well known that they were necessary if the countries were to reach a higher stage of development. Conakry had natural advantages, but remained a minor port because of the relative poverty of its hinterland. Abidjan, which had been chosen as the future deep water port of Ivory Coast remained a lagoon port after the unsuccessful attempt at digging a canal in 1907 and 1909. A wharf had been built at Grand Bassam,

⁵Thompson. Op. Cit. p. 298.

but loading and unloading of steamers anchored in the open roadstead was done by means of small boats that ply between pier and steamer, crossing and recrossing the bar. This was a costly, slow and hazardous procedure. Costly indeed, because of the slowness of operations, boats had to stay several days or even weeks, and a boat which is not moving is very costly.⁶ Furthermore, this hazardous procedure made impossible the importation of certain types of very heavy items, i.e., big locomotives, because it was materially impossible to handle them.

B. The New Era, Post World War II Policy.

During the war, the transportation facilities of the Federation ports, roads building, motor vehicles and-so-forth "gradually deteriorated through continued use without adequate maintenance and replacements."⁷

⁶In "L'economie de L'union Fransaise D'outremer". Revue D'economie Politique" Paris. April 1954.

⁷The Changing Economic Structure of French West Africa" IN The Annals of the American Academy of Political and Social Sciences. March 1955. p. 57.

Therefore, French policy at the end of the war was theoretically summarized by the words: Plan, Investment, African oriented development. When the first studies of the Commission for the Modernization of the over-seas territories were made, those who made them were extremely optimistic. Much money was expected, and very important projects of development were laid out.

The Commission made, in 1946, the following recommendations:

"One concern should always predominate, that of obtaining maximum yields. Returns (on the investments made for means of transportation) do not necessarily have to be immediate or direct, but efforts must be made to achieve a maximum reduction in the costs of services and loans.

"The transportation system must satisfy economic needs, i.e., it must be organized so that the cost per kilometer/ton will decrease as the distance increases. Here is the basic problem in territories with low concentration."⁸

Therefore the necessity of bringing in heavy equipment meant an emphasis on the development of routes for heavy transport, whether railroads, roads, rivers or a combination.

⁸In African Affairs. Op. Cit.

This was partially offset by the decision to postpone the building of new railroads. The only exception was the completion of the Mossi railroad prolongation of the Ivory Coast Railroad to Ouagadougou in Upper Volta, which was reached in 1954. On railroads, therefore, the main financial efforts were directed to the improvement of the existing lines, the adoption of Diesel locomotives on the Abidjan-Niger (the opening of the Vridi canal, making possible importations of fuel at lower cost helped the Ivory Coast railway very much), and works of modernization. Thompson⁹ remarks that the Ivory Coast Railroad received second priority, after that of Senegal in the bidding for equipment, and its modernization was much more complete than in Guinea.

In the administrative field, a major change occurred when the "Regie des chemins de fer de L'Afrique Occidentale Francaise"¹⁰ was created on July 17, 1946. The four-railroad system of French West Africa, including the Conakry-Niger and the Abidjan-Niger, was put together as an "organization of commercial and industrial character, having financial autonomy and a civil personality."¹¹ A committee established to rule the "regie", and its Director-General had authority over the Federation's ports and its highways and waterways transport system. In this way, the Federation's means of transportation were better coordinated, but at the price of a top

⁹Thompson. Op. Cit. p. 298

¹⁰English Translation: "Organization of the Railroads of French West Africa."

¹¹Thompson. Op. Cit. p. 298.

heavy and highly centralized administration. The "regie" inherited obsolete equipment and a precarious financial status. It was required indeed, to pay annually into a renewal fund, a certain proportion of its revenues. This renewal fund received only a portion of the revenues legally due to it in the first three years it was created. So, twice during 1947, the first year after it began functioning, the "regie" raised railroad rates. However, this only met the current expenses. The deficit continued to be heavy. After a five month strike in 1948, the Federation loaned 140 million of C.F.A. to the "regie", but never granted a permanent subsidy. The "regie's" equipment has been financed by loans transacted through its Paris office (as the \$7.5 million loan granted by the International Bank), and all amortization and interests payments were to come from the "regie's" own budget. In addition, the "regie" had been required to pay annually from six-hundred to seven-hundred-million of C.F.A. Francs out of its revenues into the renewal fund; and at the same time, they were required to meet rising wages and operating costs. "The upshot has been a steady increase in the rates for both passengers and goods traffic, despite the growing competition from road transport".¹² By 1951 and 1952, a drastic change in the railroad policy was necessary.

¹²Thompson. Op. Cit. p. 298

For Roads, important investments were utilized to construct some sections of heavy traffic roads, and the building of some important bridges, mostly in Ivory Coast. In Guinea, some sections of roads were also greatly improved. It should be noted thus that Guinea and Ivory Coast received an important part of the credits because they were countries where export crops were grown and the "basic infra-structure" in their southern belts was of important economic value. However, the road building program came under sharp criticism: in France as well as in Africa. In France, errors, miscalculations and waste were emphasized. In Africa, its motivations and its orientation were criticized. "That the road program had been determined by reasons of military strategy rather than economic development, was loudly alleged by leftist elements hostile to the Western bloc's defense plans. Many moderate Africans regretted the program's concentration on regions growing export crops and would have preferred that it served to open up the inaccessible hinterland."¹³

C. The Second Plan and the Recent Evolution.

The years 1952 and 1953 brought very important changes in the general transportation policy as well as in its specific aspects, especially roads and railroads.

The second year plan, although it allocated an extremely important part of the total investments to be made in

¹³Thompson. Op. Cit. p. 299

transportation (50 to 55 percent of the credits), made a shift of its emphasis from the "basic infra-structure" to investments "for equipment serving to move agricultural and industrial products and to improve communications with the less developed regions".¹⁴ That meant more specifically the abandonment of the building of brand new and spectacular roads and bridges, in favor of a mere improvement of the existing network without changing the essential routes or the general aspect. "Because the policy had been almost systematically to neglect these local aspects in favor of ambitious programs, extremely important investments had been misdirected during the first plan."¹⁵ Therefore, more emphasis was put on local needs and each territory could see its specific problems dealt with more closely. At the same time, the share of the territories in the expenses of F.I.D.E.S., which was originally 50 percent for all economic projects, was reduced to 25 percent, and the road fund was created.

The Railroad Policy was the object of many discussions in 1952 and 1953, and political questions were mixed up with purely economic ones. The deficit was heavy, the costs of transportation were high, and some detractors of the "regie" urged that bus and truck operators be subsidized, rather than keep the railroad alive at such heavy cost. The risks were too great however, and the impact too important, so that the "regie" was continued, and a higher council of transportation

¹⁴African Affairs. Op. Cit.

¹⁵Ibid

was created in Dakar, with advisory committees in Abidjan and Conakry. A new policy of lowering long-haul railroads rates on certain hinterland imports and exports was inaugurated. This new policy, in connection with the 7.5 million dollar loan from the International Bank and the effects of the improvements initiated some years earlier brought a much brighter picture in 1954. The volume of passengers and freight traffic increased at the same time that operating costs were being brought down, largely by wider use of diesel power and the budget was balanced for the whole "regie."

But there was a striking contrast between the situation in Guinea and that in Ivory Coast. In Guinea, where fewer improvements had been made, the deficit of the Conakry-Niger system was 178 million of C.F.A. francs, which was about the same figure as that for the preceding year.¹⁶ In Ivory Coast, on the contrary, the Abidjan-Niger railroad shows the biggest profit of the "Regie System": 187 million C.F.A. francs, as compared with a profit of 41 million in 1953. It was, therefore, in the country where the roads and motorized traffic were the most developed that the railroad made a substantial profit.

The main result of the read policy was the improvement of the Guinean Highlands road system and of the network in Lower Guinea, especially the important road Dubreka-Ouassou-Boffa.

In Ivory Coast, many roads have been built or improved in the coffee and cocoa areas, especially in the eastern part and also around Man and the extreme southwest.

At the same time as more autonomy was granted to the territories in regard to their economic development, and their transportation policy, more international cooperation was at last

¹⁶Thompson. Op. Cit. p. 247.

achieved. This was important for Guinea, which depends more and more on Sierra Leone and Liberia for the economic development of its eastern part (Guinea Highlands). We have already mentioned the role of Monrovia as an export outlet by the road from N'zerekore to Monrovia. Although there is no immediate prospect for the prolongation of the Sierra Leone railway from Pendengou to the Guinean Highlands, a growing quantity of products is likely to be shipped by road from that region to Freetown.

In Ivory Coast, the international cooperation is not so important, although some agreements will have to be reached with Upper Volta now that both countries are independent of each other.

D. Conclusions. Roads and Railroads.

The evolution of the transportation policy shows a gradual shift from ambitious and often uneconomic projects to more direct and practical achievements on a smaller scale. The great task of opening the hinterland by a developed system of transportation for bulky freight has progressively been given up and replaced by the concentration of investments in the regions where they could yield important and immediate returns.

Both Guinea and Ivory Coast, but especially the latter, drew great profit from that shift, as it allowed a great increase in the agricultural production of their southern belts. This was however, at the disadvantage of the northern parts of their territory, and there are striking contrasts, especially in Ivory Coast between the booming South and the stagnation in the North.

In order to achieve immediate improvements in some regions, an increased importance was given to the development of the road system, and the competition between roads and railroads has been growing since 1945. However, such a competition in relatively poor countries is a pure waste and should not be allowed, but the problem is difficult to solve.

The theoretical complementarity of the two means of communication is somewhat unrealistic. Political pressures tend to increase the number of roads and as the number of vehicles increases there is a growing tendency to go all the way by trucks, instead of utilizing the rail for a part of the route.

In the countries under review, no definite policy has been adopted. Roads have been built by the public authorities, running parallel with the railway, and the existence of the road fund makes profitable in the short run an increase in road traffic.

The railroads have met the competition by cutting their rates and modernizing (in Ivory Coast) their equipment. They are not however, utilized at their full capacity, and some kind of regulations may be necessary to keep most of the traffic for the rail where it exists, while the road transport would be used in the rest of the country and for the door to door haulages.

CONCLUSIONS

Our survey has shown a significant development of the resources and the production of two western African countries. This development is closely related to the improvement of the transportation system, as indicated by the time at which it took place and its location.

It occurred mainly since the Second World War, when great efforts and heavy investments were made in the field of transportation.

It occurred in those regions near the coast where cheap transport to the exporting port was possible to provide for "The history of the development of commercial crop production in French West Africa is directly linked with the provision of transport facilities."¹

Ivory Coast had more agricultural possibilities, and better transports were provided earlier, its development is therefore especially impressive.

Significant differences exist between the patterns of development of Guinea and Ivory Coast.

Several distinctive features may be pointed out in the development of those countries.

A. The development of the transport facilities, and therefore, the economic potential has been extremely slow, and until world war two, non-economic considerations outweighed economic ones. The location of the railroads and

¹Neumark, S.D. in "The United States and Africa" The American Assembly. Columbia, 1958. p. 96.

of the few good roads were mostly determined by military, political and administrative purposes; for the rest of the transport facilities, almost everything depended on local and individual initiative.

The "colonial pact" system aimed exclusively at the production of a few cash crops, and all investments for economic purposes were made only in the fields where they could yield immediate, direct and important returns. No long term projects were ever carried out before the war. On the whole, Ivory Coast had some advantages over Guinea. (Local initiative was most important. There was no major problem of avoiding foreign borders which could have led to an obvious misallocation of resources as was the case for Guinea.)

B. Natural Obstacles to Development Were Great In Both Countries,

but, just the opposite of what happened in the west of the United States. It is not easy transportation which induced economic development, but rather, the struggle for economic development was first of all a struggle for improved transports.

Guinea's main obstacle was its mountains, and although the railroad has overcome it, it never reached a real economic efficiency. For that reason, the great advantage of the possession of a natural harbor: Conakry did not play, in the economic development of Guinea, as important a role as could be expected. In Ivory Coast, the main obstacle was the forest belt. But it was also the richest part of the country and once transportation was provided it became a major advantage. Another handicap to Ivory Coast was the absence of a

natural port. It was overcome in a radical way by the opening of the Vridi Canal, which made Abidjan a great port open to ocean going ships and the same time, the center of the lagoon navigation.

Ivory Coast also took a lead over Guinea in the field of investments in transport. Not only did it get more money from France, but also it developed its own sources of financing, and through the "road fund" and the "coffee and cocoa fund", its own interior was opened.

C. There is a sharp contrast between those needs of Trans-

porting heavy and bulky goods at low cost in West Africa, and the actual possibilities which make it impossible for transportation to be a low cost factor. Except for the waterway system of southern Ivory Coast, the nature of the relief, the soils and the climate do not allow cheap transports. Further, the railway itself is not the high capacity and relatively cheap means it is in the United States. In any case, the high cost in capital of the railways and the lack of concentration of the production outside limited areas along the coast has induced the authorities to postpone the building of new routes.

D. Road Transportation therefore plays a major role, and the greater development of the Ivory Coast's network gives it another advantage. Coffee, which has a high value per pound, can be transported by road, therefore, the quantity exported increases rapidly when adequate road transport is provided.

An illustration of the case is the rapid and recent development

of the production of the Guinea Highlands, once this remote region was open by good roads.

E. The Processing of Local Agricultural Products is likely to increase, to reduce the cost of transport. But industrialization is to be limited to a very small number of areas, i.e., the main ports and their immediate hinterland. Here, imported raw and semifinished goods are cheaper, all exports are handled by them before being shipped, and labor as well as consumers are in abundance.

Industrialization will also occur in the area where an important factor of production is found at low cost and in great quantity. In the case of the countries under survey, this means mainly the hydro-electric power in Guinea. In such a case, transportation will have to be provided, and is not a leading factor in the creation of an industrial region but a mere consequence.

The industrial development will be therefore, extremely unequally distributed. In Guinea, it will occur at Conakry and in the aluminum production centers. In Ivory Coast, it will affect Abidjan and its region, and perhaps Bouake, on the railway, at the northern fringe of the forest belt, as a center for the processing of goods for local consumption.

F. Ivory Coast has experienced an extremely rapid growth, but with a lack of equilibrium.

The agricultural sector is by and large the leading sector, and it is likely to be so for a long time. At the same time, the development concerns almost exclusively, the southern belt, about one-third of the country, because an adequate system of transportation has been provided in a region which had a high potential. In the future, the main efforts now will have to be directed toward an increase in the quality of the products and a reduction in the cost of transport, to make those products more competitive on foreign markets. There are few prospects in the short run for a development of the northern part of the country. As long as Ivory Coast depends so heavily on its exports, only the most favored region may be fully developed.

On the other hand, Guinea has a slower economic development, but more chances exist for an equilibrated growth between sectors: As mineral production increases, and important hydro-electric potential is developed it will induce the development of other industries.

Also, the Guinea Highlands and the Futta-Jallon Plateau have potential resources which are rapidly developing when transport is provided.

G. The role of the ports is of outstanding importance. Most developments have occurred as a consequence of these port facilities, especially in the case of the Ivory Coast's boom after 1950, and the opening of the Vridi Canal: "The opening of the Vridi Canal has been a vital step toward this potential, but the distance to the port is the major factor in the economic development of a region. "Ahead of any other

considerations, the integration of French West Africa's regions to the world market is directly proportionate to the distance to the sea port."³

H. Both countries will still depend for a very long time and to a very great extent on exportation and foreign markets. On those markets, the competition is more and more severe and it will be of vital importance to keep down the costs of transportation. Thus, the new and self-governing countries, Guinea and Ivory Coast will have to find the best way to reach efficiency and their real economic interest, and the political and administrative considerations will decrease in importance in the appraisal of the transportation problems.

In most cases however, this statement holds true and could be a summary of this survey: "Economic development is still patchy and depends upon available transport rather than upon utilizing the most suitable soils in the best climatic region."⁴

A relatively good start has been taken in recent years in both countries. The pattern of development and the resources are quite different, but the prospect of an integration in the world economy is rather good. A great deal has been realized for the establishment of the pre-conditions for self sustained growth.

³. R. Mollard. Op. Cit. p. 192.

⁴. H. Church. Op. Cit. p. xxv

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