

The
ECONOMIC DEVELOPMENT OF
FRENCH INDO-CHINA

By
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Translation By Isabel A. Ward

Supplement

RECENT DEVELOPMENTS IN INDO-CHINA: 1939-1943

By
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FOREWORD

This translation of Professor Robequain's valuable study is of special importance today. It makes generally available for the first time to readers outside France what is probably the most authoritative and up-to-date economic analysis of a territory which is bound to be of unusual significance in any Far Eastern peace settlement. The French edition of the book was published in 1939, but unfortunately only a few copies were distributed outside France before the German occupation and it has, therefore, been impossible to obtain ready access to copies though they have been much in demand by Government departments and research organizations. It is hoped that the present English edition will serve to meet the increasing public interest which is likely to be expressed in the future development of this colony.

An attempt has been made in a supplementary chapter to sketch some of the principal economic developments in Indo-China since the French edition appeared. The evidence on what is happening under Japanese occupation is, of course, fragmentary and not always too reliable but a special effort has been made to consult the most trustworthy sources of information both documentary and personal. It should be emphasized that Professor Robequain, who has not been able to leave Paris and has thus not been consulted on this English edition of his book, is in no way responsible either for the translation or for the supplementary chapter. It has been fortunately possible to consult some of his colleagues in the *Centre d'Études de Politique Étrangère* which sponsored the publication of the French edition and their advice has been greatly appreciated, although they too are not to be held responsible for the text of the English edition. The International Secretariat of the Institute of Pacific Relations, which contributed financial assistance for the original study, has made all the arrangements for the present English edition.

Special thanks are due to Mrs. Isabel A. Ward who under-

took the tedious work of translating almost all of the text and to Miss Katrine R. C. Greene who gave assistance in the completion of this task and also in the preparation of the supplementary chapter. Miss Virginia Thompson and Dr. J. R. Andrus also contributed substantially to the supplementary chapter and M. Pierre Laurin and several other members of the French Committee of Liberation have contributed valuable information or advice. For the editing and proof-reading of the book, thanks are due to the following present or former staff members of the Institute of Pacific Relations: Miss Hilda Austern, Miss Katrine Parsons, Miss Frances Friedman, Mr. Philip E. Lilienthal.

It should be noted that Professor Robequain's work was undertaken in close cooperation with Professor Pierre Gourou whose book *L'Utilisation du Sol en Indochine Française* was also published under the same auspices in 1939. Plans are now being made for an English edition of this basic work on the economic geography and agriculture of Indo-China to appear under the auspices of the Institute of Pacific Relations.

W. L. HOLLAND
Research Secretary

New York
February 1944

AUTHOR'S PREFACE

A glance at the table of contents will immediately reveal to the reader the plan and the limited purposes of this work. My wish has been to show the changes effected in the economy of Indo-China as a result of the French occupation. M. Guy Lacam has been good enough to accept responsibility for writing the chapter on "Capital." The traditional activities have not been described as fully as they merit, if one considers the preponderant place which they take, in spite of recent developments, in the life of the country and in the value of its production and its trade. These activities are, however, the subject of another work also published by the *Centre d'Études de Politique Étrangère* and written by M. Pierre Gourou, *Land Utilization in French Indo-China*. We have worked together and our two books are complementary.

I began the writing of this book in the course of a recent journey in Indo-China, a journey permitted thanks to the cooperation of the Ministry of National Education, the Ministry of the Colonies and of the Government-General of Indo-China. I extend my thanks to all of those—and they were many—whose competence and friendliness have facilitated my investigations. I can show them no better evidence of my gratitude than by striving for impartiality.

Paris, May 25, 1939

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THE ECONOMIC DEVELOPMENT OF
FRENCH INDO-CHINA

INTRODUCTION

POLITICAL FORMATION AND GEOGRAPHIC POSITION

French Indo-China was established during the second half of the last century. It is not necessary here to retrace the history of the countries it comprises, but only to recall the principal steps of the French occupation which brought with it sweeping renovations in the territory's economy.

FRENCH IN INDO-CHINA

Christian missionary zeal led the first Frenchmen to eastern Indo-China. The most famous was Father Alexandre de Rhodes of the Society of Jesus. Born at Avignon in 1591, he arrived in Tonkin in 1627 and remained among the Annamites for many years; until the 19th century his works were one of the most reliable sources of information about the Annamites and the countries they inhabit. The negotiations which he undertook in Rome resulted in the establishment of the Society of Foreign Missions which had a preponderant role in the development of Christianity in Indo-China.

Then traders arrived. In the 18th century the French East India Company, wishing to spread its field of action to the Far East, sent specialists to Indo-China to survey the country's resources and to draw up plans for their development. Pierre Poivre of Lyons is the best known of these envoys whose reports, by the way, failed to stimulate any official action.

At the end of the 18th century Pigneau de Béhaine, apostolic vicar of Cochin China and bishop of Adran, came very near to playing a decisive role in the history of relations with French Indo-China. The French bishop supported the cause of the Annamite prince, Nguyễn Anh, who was driven from his capital by the revolt of the Tây Sơn. He secured the conclusion of the treaty of Versailles on November 28, 1787, the first of its kind between France and Annam, which provided

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that, in return for the support given the prince against the rebels, France was to acquire Tourane, the main port on the coast of Annam, and the island of *Poulo Condore*, off the Cochin China coast.

However, the French revolution and its consequences made it impossible to carry out the treaty's provisions. It was only from 1840 onward that the Opium War and European designs on the Chinese Empire again turned the French government's attention toward eastern Indo-China. The Annamite emperors were then persecuting white missionaries, and France and Spain decided upon energetic intervention. After a fruitless attack on Hué, the Annamite capital, the Franco-Spanish expedition turned south and captured Saigon in February 1859. By the treaty of June 5, 1862, the Emperor Tu Duc ceded the three eastern provinces of Cochin China, Bien Hoa, Gia Dinh and My Tho, and the island of Poulo Condore to France. Western Cochin China having become a hotbed of plots dangerous to French interests, the other three provinces, Vinh Long, Chan Doc and Ha Tien, came under French tutelage in 1867, and thus the colony of Cochin China was established. In the meantime, menaced by the competitive expansion of both Annam and Siam, Cambodia accepted French protection in 1863, but it was not until 1884 that an agreement drew the broad outlines of the political and administrative law which was to govern this country.

In this way the French became firmly entrenched in the Mekong delta. The occupation of the great northern plain of Tonkin, however, was a slower and more difficult task. Here were cradled the Annamite people, and thence they spread gradually down the shore of the South China Sea to conquer the countries of the South. From their point of view Cochin China was merely a recently acquired colony where Annamite expansion did not really begin until the 17th century. In earlier times the name Cochin China referred only to the deltas of central and southern Annam.

It was chiefly the desire to open a good road into China which brought the French to Tonkin. After Doudart de Lagrée's expedition in 1867-1868 had proved the difficulty of reaching Yunnan through the Mekong valley, the Red River

valley seemed to offer the easiest gateway to that province and one through which French influence hoped to spread to the Yangtze valley and especially to the rich Szechwan basin.

A merchant, Jean Dupuis, was one of the main instigators of French intervention in Tonkin, which coincided with the beginning of the white man's great race for colonies which dominated world history from 1875 to 1914. It was only with great reluctance, however, that the French government followed up the initiative taken by its citizens. The rapid conquest of the Tonkin delta by the naval lieutenant, Francis Garnier (1873), was disavowed; and although the treaty of 1874 acknowledged France's right of protectorate over all the Annamite countries, its terms were rather ambiguous and there was no provision for its implementation. In 1882 when the Emperor Tu Duc, in alliance with China, began to make trouble for the French, the latter engaged in military activity (this time with stronger forces than in the past) which led to the treaties of 1884 and 1885. These finally and definitely established the French protectorate over Annam and Tonkin.

Laos was the last great country to become part of French Indo-China. French influence there had spread gradually, coming first from Cambodia and then from Tonkin and Annam. This peaceful expansion is forever connected with the name of Pavie, the explorer who set out "to conquer hearts." Nevertheless, there were clashes with Siam which was eager to acquire all the countries where Thai dialects were spoken. The French protectorate over Laos was not established until the Franco-Siamese treaty of October 3, 1893, under which Siam renounced all claims to territory on the left bank of the Mekong.

The western frontiers of French Indo-China were finally fixed in their present form by further treaties and agreements, the most important of which are the Franco-Siamese treaty of February 13, 1904, by which Siam renounced all the sovereignty which it still retained in Laos over Bassac and that part of the kingdom of Luang Prabang located on the right bank of the Mekong; and the Franco-Siamese treaty of March 23, 1907, by which Siam ceded to France the Cambodian regions of Battambang, Siemreap and Sisophon, the

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latter including the ruins of the ancient Khmer capital, Angkor Thom. Thus, French tutelage was widened to include the entire Great Lake basin and reached right up to the Siamese threshold at Wadhana.

Today, French Indo-China is entirely pacified. Undoubtedly, in the high plains and mountains of southern Annam there remain a few patches of insubordination. In Ngoc Linh and Ataouat, between Kontum and Tourane, as well as in the loop of the Dong Nai west of Djiring, groups of Moi still evade French administration and taxation, and practically forbid the white man's encroachment upon the region. During the World War these areas spread somewhat but today, hemmed in by French outposts, they include only a few thousand inhabitants. A generous desire to tame these backward groups, to spare them the all too brutal and fateful impact of a higher civilization, permits them to remain almost unknown, but a few miles from our great highways, and to live in savage independence.

THE COUNTRY AND THE PEOPLE

As even a small scale map will show, Indo-China does not form a geographic unit. Right across it, from northwest to southeast runs, not the single narrow mountain chain implied by the commonly used name, Annamite Cordillera, but a high rampart, varying in width and especially broad and high in the north. Between the Red River delta in Lower Tonkin and the Mekong valley in Upper Laos rise a series of plateaus and wild mountain chains reaching their greatest altitude in the northwest, near the Chinese frontier (Fan Si Pan, 3,142 meters elevation). Winding rivers, their course often strangled and broken by rapids, offer no easy way through this barrier.

Near latitude 18° north the Mekong flows less than 200 kilometers from the Annamite coast. Here, if anywhere, the Annamite Cordillera deserves its name. Relatively low passes (Mu Gia at 418 meters and Ai Lao at 410 meters) permit rather easy transit from Annam into Lower Laos. Old foot paths, ox cart roads and new automobile highways cut through the picturesque limestone formations, twist among

the sandstone hills covered with light, monotonous forests and quickly bring the traveller to the majestic reaches of the Mekong between Vientiane and Savannakhet.

South of latitude 16° north none of the ranges is higher than 2,600 meters. While the road leading from Qui Nhon on the east coast to the plateaus of Kontum and Pleiku climbs about 800 meters to Mang Giang Pass, the one leading from Ninh Hoa to Darlac on the way to Ban Me Thuot never has to go higher than 600 meters. Toward the south, between the Mekong and the coast of Annam the plateaus broaden out, towering over the surrounding country with steep cliffs. Especially toward the east, these have been devastated by violent erosion and are covered with thick forests, very difficult to cross. Thus the two slopes of Indo-China—Tonkin and Annam, facing east, and Laos, Cambodia and Cochin China, facing south along the Mekong—are quite isolated from each other.

The unity which structure and surface denied to the country was not attained by its inhabitants. The whole history, at least the modern history, of the Indo-Chinese peninsula is dominated by the expansion of a few ethnic groups from north to south. On the eastern slope of the region which was to become French Indo-China the Annamites had an unusual fate. From the 10th century on they have pushed into the country south of *Porte d'Annam*. Driving back or assimilating the Cham who borrowed the leading characteristics of their civilization from India, they reached the delta of the Mekong six centuries later. There the French found them, in the middle of the 19th century, expanding at the expense of the Khmer, another people imbued with Indian culture. The present border which meanders across the plain separating Cochin China and Cambodia is nothing more nor less than the ethnic frontier resulting from that southward push.

An ethno-linguistic map of the Indo-Chinese populations (see for instance, the *Atlas* published by the Service Géographique de l'Indochine) indicates a great medley of races. Especially striking is the way in which the Annamites, stretching the whole length of Indo-China from north to south, always remain close to the seaboard. This calls forth the classic

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simile of the two big sacks of rice hanging from both ends of the *carrying pole* or native "ganh." This parallel, however, is too simple and rather misleading. Far from being as monotonous as this picture suggests, Annam has a great variety of scenery and resources. Nevertheless it is true that, between the two great plains of Lower Tonkin and Cochin China, the Annamite settlements are broken into small fragments centering around the little deltas which dot the coastline and are isolated from one another by the big, wild barriers of nearby mountains. The Annamite emperors took great pains to assure easy communications between Tonkin and Cochin China. Today both the mandarin road and the trans-Indo-Chinese railroad testify that the French administration has inherited their concern with this problem. Nevertheless, a certain dualism, based on interest and sentiment, still exists between Tonkin and Cochin China. The Governor General's annual change of residence from Hanoi to Saigon shows that this latter has not been willing to renounce entirely its claim to be the capital of Indo-China and reflects the effects of the country's geographic structure and of the coastal location of the Annamite settlements.

The great majority of the population of French Indo-China, about 72 per cent, are Annamites. Nearly all live in Tonkin, Annam and Cochin China, their settlements being concentrated in the maritime plains and deltas. The Khmers or Cambodians are the only people other than the Annamites who have access to the sea,—and this only on a short, inconvenient coast line. Next to their conquerors, they are the most compact group in French Indo-China (about three millions) and, like them, though to a somewhat lesser extent, they inhabit low plains.

Mountains and plateaus, however, cover a much greater area in Indo-China than do the plains. Roughly speaking, the highlands include all of Laos and the greater part of Tonkin, Annam, Cambodia and eastern Cochin China. A great variety of peoples live there, official statistics listing especially the Thai, Muongs, Indonesians, Mans and Meos. These differentiations are mainly linguistic, most of the groups being divided into numerous tribes and never having achieved political unity. Some, like the Thai, and among them Laotians in par-

ticular, have a marked preference for the valleys. Others, like the Indonesians, Mans and Meos, prefer the plateaus or the higher mountain slopes up to 1,500 meters elevation; these are the real highlanders of Indo-China.

POLITICAL ORGANIZATION

The political framework of Indo-China illustrates a very interesting attempt to take geographic conditions into account. Until 1887, Annam and Tonkin were jointly subordinate to the Ministry of Foreign Affairs; Cochin China and Cambodia were under the authority of the Ministry of Colonies while remaining independent of each other. Thanks to the perseverance and initiative of Paul Bert in particular (who died at Hanoi at the end of 1886) the constitution of French Indo-China, or of the Indo-Chinese Union as it is still called, was enacted by decree on November 11, 1887. The four countries, soon to be joined by Laos, became a political unit administered exclusively by the Ministry of Colonies and under the direct authority of a Governor General.

It is not easy to define briefly the prerogatives of the Governor General for they are great and varied. It may be said, however, that in Indo-China he is the only authorized representative of the French government and that, for that government, he is the representative of the general interests of all the territories with whose welfare he is entrusted.

The establishment of the Indo-Chinese Union, following no historical precedent, was an act of major importance. Its effects began to appear as soon as the Governor General could make available powerful means for action. In this respect the work of Governor General Doumer (1897-1902) was decisive. He succeeded in setting up a general budget to be maintained from local resources (especially from customs, indirect taxes, excise taxes, registry dues and stamp duties). This budget, which was to be of growing importance, permitted the creation and improvement of the main technical services and centralizing organizations such as the Departments of Public Works, Agriculture, Mines and Industry, etc., which were to play a great role in the development and unification of Indo-China.

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At the same time, the five countries of the Indo-Chinese Union retained their distinct administrative regimes, their local government and a relationship with their historic past, with their social structure and with the circumstances accompanying the French intervention. They also kept *their local budgets*, provided for by direct taxes (land tax, poll tax, licenses, etc.). Civil administration replaced the military in the south in 1879 and in Tonkin and Annam in 1886. Only the territories bordering on China in northern Tonkin and Laos are still administered by higher army officers; but they too, like the civil service officers at the head of other districts, are placed under the authority of the head of the local government, the Resident Superior.

In Cochin China, however, this official is called the Governor, a title suited to the country's special position; it is the only Indo-Chinese colony, in the strict sense of the word, being administered directly by French civil servants and having no separate native administration, i.e. an administration "left in the hands of native officials working under native regulations." Cambodia and Annam, on the contrary, are "protectorates" which have kept their respective sovereign, king or emperor. There the native administration functions side by side with the French.

The protectorates of Tonkin and Laos are less strict and complete. In Tonkin, in fact, the Emperor of Annam had to delegate his powers in 1886 to a viceroy who was dispensed with later on and his prerogatives transferred to the French Resident Superior. Never having been united under a single government before the French occupation, Laos has only a native prince whose sovereignty is limited to one part of the country, the kingdom of Luang Prabang.

These differences in political form and administration, emphasized in the law books, do not show so clearly in everyday life. Undoubtedly, it would be very interesting to point out the varied relationships between French officials and native mandarins in Annam where the "clans" and "ministries" of Huê play a considerable role, and those in Tonkin and Cambodia, where despite appearance and the texts of treaties, the protectorate often seems rather fictitious. In Cochin China,

the presence of the Colonial Council with its rather broad prerogatives helps to create a special political climate. Nevertheless, the powers of the heads of the provinces, whether they be called administrators, residents or commissioners, do not vary much from one country to another within the Union. Even in the protectorates the French have constantly had to intervene in the relations between provincial and communal institutions, which had to be adjusted and adapted. Material transformations and the progress of colonization have brought about changes in old political and administrative forms everywhere. Even at Hué, conservatory of old traditions, the court ceremonies performed at regular intervals are now but a pale reflection of the pomp of former days. In its turn economic development, that potent agent for social and political change, does not appear to have been greatly influenced by the variety of administrative regimes. It was the higher French officials, the Governor General and the Residents Superior, who made the budgets. The great technical services which depend upon them are largely responsible for Indo-China's development.

Private capital and enterprise seem to have found the same official help and the same official restrictions throughout the country. It was geographic conditions which largely determined their use and development, so widely different in different regions.

If it has become necessary gradually to widen the methods of direct administration it should not be concluded that the natives are deliberately being kept out of the conduct of public affairs. As in all colonial countries many traditional institutions have died or have become anæmic; in their place others have sprung up which indicate the French desire to give the natives an ever greater share in the government of their country—a share which they never enjoyed in the past. This is the reason for the formation of those mixed assemblies such as the Colonial Council in Cochin China where native and French representatives sit side by side. This is also true of the Great Council of Economic and Financial Interests, organized in 1928, which sits with the Governor General. This Council is consulted on economic and financial questions and may make decisions in matters of indirect taxes and loans.

Moreover, in other Indo-Chinese countries wholly native assemblies have also been set up, as well as Chambers of Representatives of the people or Consultative Assemblies.

This political evolution is in keeping with the new economic system now developing and it parallels the changes which, under the influence of white colonization, are appearing within the very structure of the native societies.

Social changes are nowhere more pronounced than in the Annamite countries and they have been endlessly pointed out. The ill effects of this evolution, the supposedly uncrossable gulf which has opened between the old and the new generation have been denounced with horror. It is quite true that the young native educated in our schools no longer has his father's mentality. But without claiming on principle the superiority of white civilization it may well be said that since the Frenchman's arrival Indo-China has been swept by a great fresh wind. While colonial development was under way, and the relations and cultural and economic bonds between Indo-China and the West were multiplying, another conception of the world and of human activities took shape in the native's mind. The traditional hierarchy of social values lost its earlier importance. Recognition of the individual's importance has grown at the expense of the two basic units—the family and the village. The father complains of no longer being understood by his sons and that they have slipped out of his heretofore quasi-absolute authority. Even the girls become emancipated and demand the right to marry according to their choice. Dance halls prosper in Hanoi as they do in Shanghai and Singapore.

To those who despise new ways, others reply that these changes were inevitable. The natives themselves favor their rapid spread at least as much as do the whites. Schools of every grade, multiplied by the French, are still too few for the mass of pupils eager to drink at new springs. The primary education which the French established is conducted in large part in the principal local dialects, and in the upper grades an important place has been kept for the study of the fundamental civilizations of the region and of Indo-Chinese humanities. It is the impatient wishes of France's protégés

which urge more study of French, Western science, philosophy and literature. It would be quite wrong to think of the white man in this colony as being all out for assimilation; more often he has to resist the natives in their firm desire to be assimilated.

It is often noted, however, that such change is only superficial; underneath his collar and soft hat, the son of Indo-China keeps the character and the deep-seated tastes of his race. After returning from France, such a student is quickly recaptured by the powerful influences of his surroundings; once adorned with his diplomas he who had shown ardent curiosity about Western life and such surprising avidity for education, falls into a kind of intellectual nonchalance and insurmountable apathy, no longer caring to learn or to perfect himself.

These opinions and apparently contradictory judgments prove that intellectual development, though unfailing and swift, is by no means catastrophic. For a long time to come, new tendencies will have to compromise with the traditions and hidden forces characteristic of the race, and French and native influences will have to merge.

FRENCH INDO-CHINA AND ITS NEIGHBORS

At the other extremity of the Eurasian continent, French Indo-China is more than 11,000 kilometers from France, as the crow flies. It is only a part of the geographic bloc called Indo-China, a well-chosen name which seems to have been first used in France by Malte-Brun at the beginning of the last century. Lying between India and China, the Indo-Chinese peninsula, from the Bay of Bengal to the Gulf of Tonkin, has a character all its own. In its climate, physical structure, history and civilizations, Indo-China's bonds with its two great neighboring empires are evident.

Like them it is part of that climatic zone which is characterized throughout the year by the alternations of the monsoons—the northern and northeastern monsoons which usually bring cool, dry weather, and the southwestern, southern and southeastern monsoons which bring warmth and abundant rainfall. In Indo-China, as in India and Southern China, the

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majestic cycle of these winds give life its rhythm. It regulates agricultural work which centers on rice, that nourishing and sacred cereal.

Without taking a look at the neighboring regions it is impossible to appreciate Indo-China's shape. The mountainous heights of the Himalayas and Tibet crowd together toward the southeast into a kind of fagot where the Irrawaddi, the Salween, the Mekong and the Yangtze plough their deep, parallel valleys. Then the plateaus open up again while gradually descending to the Indo-Chinese peninsula and spread out like a fan, clearly marked by the great diverging rivers. Indo-China forms a barrier between India and China, its lands offering no natural or easy road from one to the other.

Nevertheless, the Indian and Chinese civilizations, among the oldest in the world, were to meet here; the eastern part of Indo-China, later to be French, was the liveliest theatre and most disputed stake in their rivalry.

Early in the Christian era, priests, merchants and adventurers, few in number, but active people, came over, apparently from Bengal and the Coromandel coast, and left ferments of Indian culture on the coasts of southeastern Indo-China, Sumatra and Java. They helped the early flowering of states whose religion and art show Hindustani influences: first, the Champa Empire cradled in the Nhatrang region, extended north of Huê in the tenth century; and second, the Khmer Empire which itself succeeded the Fu Nan in the Mekong delta and whose most brilliant period was that of Angkor (10th to 13th century).

Meanwhile, China pressed heavily against the Indo-Chinese peninsula. The very direction of valley foldings and water courses, running on the whole from north to south, favored her influence and impeded India's. The handful of Indian emigrants who civilized the still crude people of southern Indo-China could get there only by sea. Maritime relations between China and the peninsula are certainly very old too; but in addition, the interior valleys and coastal plains offered passageway to groups of people pushed out by the early overpopulation of China's plains. Traces of mongoloid races

which came down from the north are found in the prehistoric remains discovered in Indo-China; their southward migration has never halted since that time.

This immigration did not have the same results everywhere. In the west and center of the peninsula, Burma and Siam are still largely cultural dependencies of India although the Chinese play a considerable economic role there, at least in Thailand. In French Indo-China, the people who came from the north brought with them the essential elements of Chinese civilization. By the 10th century, the Annamites had escaped from China's political domination, but culturally they had already been shaped by her. They remained under China's radiating influence and propagated her culture as far as the Mekong delta; in a sense, their expansion in French Indo-China amounted to a Chinese victory over India.

This Chinese preponderance in eastern Indo-China may also be explained in terms of population density. The Indo-Chinese peninsula is, on the whole, a rather poorly populated section of southeastern Asia. While British India can support more than 80 people per square kilometer and the 18 Chinese provinces perhaps even more, neither in Burma nor in Thailand is the population density as much as 25 per square kilometer, while in French Indo-China it is 35. The latter country is linked to China by a long northern frontier; the valleys of the Red and Clear Rivers form the paths taken from time immemorial by the migrations and trade moving between the plateaus of Yunnan and the plains of Tonkin. In the east, Chinese-Indo-Chinese relations become much easier as the country flattens out; the Song Ky Kong and the Song Bac Giang, originating in Tonkin, flow toward the Sikiang and the Canton delta, and the "Porte de Chine," north of Langson, is one of the main passageways into Kwangsi. On the coast itself, a fringe of alluvial plains, though often narrow and broken by large estuaries, nevertheless forms a continuous link from Kwangtung to the Red River delta, while the gulf of Tonkin has long been the haunt of sailors and fishermen from southern China.

In a great many respects French Indo-China is complementary to China. To the latter's swarming crowds it offers

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still rather thinly populated areas. Sometimes violently but on the whole peacefully, Chinese infiltration across the frontier north of Tonkin continued throughout the 19th century and still goes on today under the control of French military outposts. French occupation of Indo-China has promoted the immigration of Chinese merchants and coolies by sea.

Finally, overpopulated southern China finds in French Indo-China the nearest producer of the foodstuffs which her own soil does not furnish in sufficient quantity. Becoming more and more profuse toward the south where the forests are almost equatorial in character in South Annam and Cochin China, Indo-China's flora is rich in the essences, resins, grains, fruits, barks and hides which have been used in Chinese cooking and pharmacopœia for many generations. The export of rice to the southern provinces of China is likely to remain one of the most solid foundations of Indo-China's economy.

In the west, French Indo-China borders on Burma and Thailand, the former frontier lying in a very short section of mountainous country, difficult to cross and almost without trade. The Thai frontier is by far the most extensive. Chosen by diplomats as the most convenient borderline, the Mekong River cuts Laotian territory in two. As a matter of fact, geographic conditions favor intercourse between Thailand and the Laotian provinces under French sovereignty. From the middle Mekong to the Gulf of Tonkin communications across the Annamite mountain chain are rather difficult, whereas from the Mekong to Thailand they are comparatively easy. Northwest of Vientiane, it is possible to cross from the Mekong into the Menam Basin over passes of moderate height. To the south, the Korat plateau presents no obstacles to trails or railroads; and at Wadhana is a wide gateway from Cambodia into Thailand. Even before it was affected by the economic rivalry between Bangkok and the ports of eastern Indo-China, however, trade between Thailand and French Indo-China was handicapped by the fact that Laos was thinly populated and economically backward. Trade relations between the two countries also suffer from a similarity in production. Their rice surpluses in particular make them

competitors in a great many markets, especially in China and Malaya.

Beyond Thailand, Burma is a big impediment to any communication with the Bay of Bengal. India's neighbor and part of the same Empire, Burma is still only partly colonized; itself a big producer of rice, it plays—to some extent—the same role with regard to China, that great overpopulated country, as does French Indo-China.

From Cochin China it is easy to move into Malaysia and Indonesia. Narrow and twisting, the Malay peninsula is almost an island. In prehistoric, though geologically-speaking recent, times Sumatra, Java and Borneo were part of the Asiatic continent. Even after their separation, constant relations were maintained between Indo-China and the scattered archipelago. The influence of the Indian colonies in Sumatra on the evolution of the Khmer Empire was by no means unimportant. Even today, Cambodian Mohammedans go to schools in Kelantan to study religious subjects. An analysis of the civilizations of French Indo-China must not neglect relations with Indonesia. European colonization has not suppressed them. Java, whose population has multiplied enormously in the last century, is one of the countries for which Cochin China's rice surplus seems naturally destined. Already an old colony, the Indonesia which the Dutch transformed is of special interest for Indo-China as a valuable example and guide.

Beyond the Philippines, northern end of the Indonesian archipelago, another string of islands helped implement Japan's tremendous rise to power. Japan's relations with eastern Indo-China are of long standing too. In former times, the Japanese frequented the ports of Cochin China and present-day Annam. When Father Cristoforo Borri arrived in Faifo in 1618, he found numbers of Japanese merchants there. Japanese vessels in this port have tied up alongside junks from Kwangtung, Fukien, Thailand, the Philippines, and European ships since the middle of the 16th century. After edicts of proscription were issued against the Christians, relations between Japan and Indo-China came to an end in about 1640, but the Japanese colony in Faifo subsisted for a long time. Japan's expansion in the Far East, so rapid in the Meiji era,

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could never be unimportant to French Indo-China. It has been argued that a tropical country like the French colony would be of as little use to the surplus Japanese population, who enjoy a relatively temperate climate, as it is to white men. But eastern Indo-China may well appear to an over-industrialized Japan as a very valuable outlet for manufactured goods as well as a source of the raw materials and foodstuffs which her huge working population needs. Well established in Formosa and still widening her hold on China, Japan landed recently in Hainan and on the Spratly Islands and already casts her shadow over Indo-China.

Finally, this enumeration of French Indo-China's neighbors should not omit those which though distant, owe the same allegiance and form part of the same colonial Empire, the French islands and archipelagoes of Oceania—New Caledonia, the New Hebrides and the Polynesian archipelagoes. In fact, they seem rather near the Indo-China coast by comparison with their great distance from France. Within the French Asiatic federation valuable trade relations are maintained; for instance, the island possessions can secure agricultural labor from Indo-China to supplement their own sparse, lazy and rather unmanageable native supply. No wonder that Indo-China is sometimes described as a guardian and as a second mother country for these smaller French territories scattered throughout the Pacific.

All the problems which Indo-China presents to the mother country thus have two main facets and must be examined from two different angles. The Indo-Chinese Union is a French creature whose cohesion is assured only by the will and power of France. Because of its position between India and China, on the edge of the Pacific and facing Oceania, it is locked in a network of cultural and economic relations which it would be futile to disregard and dangerous to weaken. It is essential that the discussions of those responsible for the future of Indo-China be based on a planisphere and on the maps of a good atlas.

PART I
GENERAL FACTORS IN INDO-CHINA'S
ECONOMIC DEVELOPMENT

CHAPTER I

PEOPLE

EUROPEANS

As in all tropical countries, white people are a tiny minority of Indo-China's population. Their dominant role in the colony's life is out of all proportion to their percentage in the total population. There was, however, a rapid increase in the white population after the World War; in 1913 there were some 24,000 "Europeans" in the colony, about 25,000 in 1921, and 42,345 in 1937, the year in which the first systematic census was taken. Although the number of Europeans has increased more rapidly than the native population since the beginning of the century, there is still only one "European" for every 544 Indo-Chinese; moreover, the proportion varies in different regions, as indicated in Table 1. Cochin China

TABLE 1
NUMBER OF EUROPEANS* AND "ASSIMILÉS" AND THEIR
RELATION TO THE TOTAL POPULATION (1937)

<i>Country</i>	<i>Total Population</i>	<i>Density per square kilometer</i>	<i>Europeans and "Assimilés"</i>	<i>No. of inhabitants for each European</i>	<i>Europeans as per cent of total population</i>
Cochin China	4,616,000	71	16,084	286	0.35
Tonkin	8,700,000	75	18,171	478	0.21
Annam	5,656,000	38	4,982	1,135	0.09
Cambodia	3,046,000	17	2,534	1,202	0.08
Laos	1,012,000	4	574	1,763	0.06
Indo-China	23,030,000	31	42,345	544	0.18

*This includes both Europeans and "assimilés," the latter being people enjoying the legal status of Europeans, though they are not necessarily of European origin.

has the greatest number of European inhabitants, with Tonkin in second place, the white population in these two countries making up four-fifths of the total number of Europeans in the whole colony. In Laos the proportion is smallest,

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with only one European per 1,760 inhabitants and per 403 square kilometers. The proportion of Europeans decreases from one region to another region as does the population density. While they comprise only a skeleton of the total number of inhabitants, Europeans direct and manage the economic development of the country, acting through the natives and immigrants of other races. In other words, they are leaders and superintendents, more than executives.

The proportion of white blood is even smaller when the statistical category of "European and assimilated" is broken down according to origin. As a matter of fact this classification includes not only individuals of European origin but also those who enjoy the protection of European law—a legal rather than an ethnic basis of distinction.

The census of January 28, 1937, the first based on individual returns, gives valuable information on the subject.¹ It indicates specifically the birthplace of persons of various nationalities. Persons of French nationality are by far the most

TABLE 2
EUROPEANS (AND "ASSIMILÉS") ACCORDING TO NATIONALITY (1937)

French by birth	36,134
French by naturalization	2,746 *
Japanese	231
British	138
Americans	94
Other foreigners	2,311
Nationality not given	691
Total	42,345

*In 1936 there were 37 naturalizations, 29 of them being Indo-Chinese and 8 of them foreigners.

numerous since they include both those who were French by birth (the great majority) and naturalized French citizens. (Table 2).

An examination of the birthplaces given in Table 3 is

¹This census, which had not been published at the time this study went to press, was made available to the author, along with other recent documents, by M. Smolsky, chief of the Bureau of Statistics in the Department of Economic Affairs at Hanoi, to whom the author wishes to express his gratitude.

particularly informative. "European" foreigners are a small minority of the foreign population, which includes not only whites but some Asiatics who have acquired European status by law as, for example, Japanese whose number has been de-

TABLE 3
BIRTHPLACE OF EUROPEANS (AND "ASSIMILÉS") ACCORDING TO SEX

<i>Birthplace</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>
France	13,229	5,816	19,045
French Indo-China	7,552	7,886	15,438 *
French India	674	324	998
Other French colonies	1,752	593	2,345
Japan	108	99	207
Other foreign countries	2,796	699	3,495
Not known	441	376	817
Total	26,552	15,793	42,345

*In 1,995 cases, both parents were born in France; in 9,131 cases, the mother was born in Indo-China; and in 4,638 cases, both parents were born in Indo-China.

creasing since the beginning of the century, and even a few Filipinos.

Among those born in France or in the French empire, the census distinguishes four main categories:

(1) Indians from French India, numbering about a thousand. They live principally in the cities of Cochin China, especially Saigon, where they are engaged in textile trade, brokerage and money lending.

(2) Those born in French colonies other than India and Indo-China, numbering 2,345. Most of these come from Reunion Island and the Antilles; they include some creoles, but more are of mixed blood. Their relative importance seems to have diminished since the beginning of the French occupation.

(3) Those born in Indo-China, numbering 15,438. This category, much more numerous than the two preceding ones, is very heterogeneous. In more than half the cases the mother was born in Indo-China and in more than a quarter both parents were born there; in scarcely 2,000 instances were both mother and father born in France. This category includes a

large number of half-breeds (of varying degrees of mixed blood) resulting from marriages of Europeans to native women. It does not include all half-breeds, but only those who have been recognized because of their parentage² or who have acquired the title of French citizen by law. Also in this group are the natives who have obtained naturalization on reaching the age of 21, according to the provisions of existing laws, especially native women legally married to French citizens. It is because of the latter that the proportion of those born in Indo-China among the "European and assimilated group" is much higher for women (almost half) than it is for men. It also includes those pure-blooded whites whose parents were both born either in France or in Indo-China: the latter is the true definition of an Indo-Chinese creole.

It would be very desirable to determine precisely the proportions of these different groups.³ An estimate of the number of creoles, in particular, would make it possible to determine to what degree the white race has been able to take root and establish families in the colony. The fact that the percentage of "Europeans" born in Indo-China is higher in Cochin China than in Tonkin is surprising at first, since the former's climate is less suited to Westerners. But it should not be forgotten that the French occupation first began in Cochin China and that third and even fourth generation creoles and half-breeds may be found there. While adequate information is lacking, it appears that there is a much smaller number of creoles than of half-breeds.

(4) Finally, persons born in France still form the majority of the category, "European and assimilated." Coming from all the French provinces, it would be interesting to know the exact number from each. It is undoubtedly true that the

² We have found no statistics for unrecognized half-breeds who either remained among or fell back into the native population.

³ The statistical yearbooks record births among the "European" population. In 1934, there were 591 children born of mixed parentage (European father and native mother, or—in a very few cases—native father and European mother) and 781 children of European descent (but half-breed parents who had obtained European status were included under "Europeans"). In 1935, the figures were 655 and 833, respectively, and in 1936, 607 and 747.

largest number hails from the southern departments and especially from Corsica; Bretons are also relatively numerous. These origins have influenced the colony's history and help to explain certain *features of political custom and economic activity*. The part played by the different provinces in the *colony's life must certainly be brought to light someday*.

In summary, the pure whites, numbering some 30,000, do not form quite three-fourths of the total category of "European and assimilated."

The division of "Europeans" according to sex and age shows clearly the reasons for the instability of this population group. The proportion of women has been gradually increasing thanks to more hygienic and comfortable living conditions, the development of settlements at higher altitudes, improved ocean transportation and also the gradual disappearance of French prejudice against colonial life. Today young Frenchwomen are more willing than formerly to follow a man to this distant land. Indo-China is even tempting a few unmarried career women, especially in the teaching profession. However, women are still greatly outnumbered by men, and would be even more if only 100 per cent whites were enumerated.

It is now possible for colonists to live a normal family life in Indo-China. The school system is being continually improved and children may carry their studies through as far as college and even beyond, since they may study law or medicine at the University of Hanoi together with the native students. However, the small proportion of those between the ages of ten and twenty living in the colony indicates that many parents still prefer to have their children brought up in France where the surroundings are, after all, more suited to their physical growth as well as to their intellectual and moral training.

About half the "European" population is in the 20 to 40 year age group; these men in the prime of life are responsible for maintaining the vigor and prosperity of the European colony. More than half the "European" men over fifteen are bachelors. But the decisive proof of the population's instability is furnished by the length of the average stay in the colony.

Forty per cent of the "European" population has been in the colony for five years or less. It is true that the proportion of those who have been in the country 15 years or more is rather large (26 per cent) but it is this group which includes the largest number of half-breeds; the percentage of pure whites would certainly be much lower.

TABLE 4
LENGTH OF STAY IN INDO-CHINA OF "EUROPEANS"
AND ASSIMILÉS (1937)

	<i>No. of Persons</i>	<i>Per Cent</i>
Less than 1 year	5,732	13.5
From 1 to 4 years	11,333	26.8
From 5 to 9 years	7,531	17.8
From 10 to 14 years	5,182	12.2
15 or more years	11,195	26.4
Length of stay unknown	1,372	3.2
Total	42,345	100.0

It is easy to exaggerate the debilitating effects of the Indo-Chinese climate on Westerners. To explain the mortality rate, which incidentally has been decreasing steadily, all those fatalities due to the complete change of routine from life in France must be taken into consideration. Methods of treating and preventing many of the specifically colonial diseases are constantly being improved. Vaccines and serums have greatly increased immunization. The use of specifics, such as emetine for dysentery, and quinine and its derivatives for malaria, has become quite general.⁴ Among the Europeans settled in Indo-China, the average death rate reached and sometimes exceeded 100 per 1,000 able-bodied men before 1884; this was gradually reduced to 10 or 15 per thousand in the 1913-1922 period and to only 5.72 in 1929. There has been much less decrease in the

⁴Dr. H. G. S. Morin, *Entretiens sur le paludisme et sa prévention en Indochine*. Hanoi, 1935, pp. 31 and 171.

"From April to August 1885," Grall writes, "12,000 men debarked at Tonkin . . . one third of this number were victims of fever or had been recalled to France at the end of the fourth or fifth month of their stay, and we shall always remember the exploring parties which after 20 or 30 days' travel on the roads of Chu or An Chau, saw the number of their able-bodied men cut in half." *idem.*, p. 30.

sickness rate; from more than 500 per 1,000 affected in 1884, it dropped to approximately 200 in 1904; and from 1905 to 1930 it wavered between 180 and 250 per 1,000. But sanitary improvements such as draining swamps and covering them with oil, carried out under the direction of the Pasteur Institute, have greatly bettered conditions in urban centers which heretofore had been very unhealthy. Typical of such places were the Tonkin cities of Tuyen Quang, Hoa Binh, Lao Kay and Ha Giang, which was still called "the city of fever and death" in 1925, and where 27 of every 34 Europeans, or 79 per cent, displayed symptoms of swamp fever in 1926. Bringing in pure drinking water has also contributed much to the decline in fatal diseases.

We lack the accurate information necessary for estimates of the average life expectancy of colonials and for comparisons with that of Frenchmen at home. Moreover it would be very difficult to determine since many colonials die in France either while they are on leave⁶ or when they have finally retired from the Colony. Such calculations should be based only on those Europeans who have spent considerable time in the colony; it should also take into account the length of their visits to the mother country during their colonial careers. Nevertheless, the number of "Europeans" over fifty seems relatively small in proportion to the percentage in France. The question of acclimatizing Europeans in tropical zones causes endless controversy. Undoubtedly Indo-China offers many examples of almost complete adaptation, but this does not furnish positive proof that a white race can take root and become permanently established in the tropics without losing some of its purity and inborn characteristics.

Perhaps it will be answered that whites in Indo-China reside precisely in those places which are least favorable climatically. But the higher altitudes are not always as healthful as one might think at first. This has been shown by research, carried on for some years by experts from the Pasteur Institute, on malaria, perhaps the greatest barrier to human activity in the

⁶ Government officials and most of the Europeans employed by private business are entitled to six months leave of absence (excluding time spent in travel) every three years.

colony. Above the delta regions, most of which are free of the disease, are rugged districts with thick vegetation and swift-flowing streams, of from 25 to 500 meters elevation. These are the regions most favorable to the year-round reproduction of the most dangerous types of anopheles mosquito. At from 500 meters to 1,000 meters elevation, malaria cases are far from unusual. Although the studies are still incomplete, they seem to show that between 1,000 and 1,500 meters, winter cold limits the reproduction of the carrier mosquito to a much shorter period, and several species which are very active at lower altitudes disappear entirely; at the same time, greater variations in temperature make the climate rather pleasant for Europeans, being more like that to which they are accustomed.

Up to today, however, due to the difficulty of communications and especially the shortage of labor, European colonization has rarely extended into the highlands. Although some new plantations have been started on the plateaus of southern Annam, there are very few Europeans engaged in agriculture or any other profession at altitudes of more than 500 meters or at a distance of more than 150 kilometers from the coast. The resorts of Chapa and Tam Dao in Tonkin, and Bana and Dalat in Annam are really active only for a few weeks each year; they are principally places for summer holidays and rest, and are invaluable for the health of many Europeans. There is a French college at Dalat, once considered for the administrative capital of Indo-China. Numerous villas have been built on the pine-covered slopes and hotels also accommodate a good many guests from neighboring countries of the Far East. The tourist business has made a number of Europeans permanent residents of Dalat, and hotel men, various merchants and carriers, make it their livelihood. But nowhere in the mountains are there permanent and compact European settlements.

Almost all the Europeans, whether officials or not, live in the plains just as the natives do. More than three quarters live in the deltas of Cochin China and Tonkin, more than half of them in the cities of Saigon-Cholon, Hanoi, Haiphong, Phnom Penh, Huê and Tourane. Even in the back country, Europeans usually live in the deep, and sometimes still un-

healthy, valleys, where the principal administrative centers and regional markets are located near navigable rivers.

The types of occupations engaged in again reveal how little settled are the whites in Indo-China. More than half the population, including children under fifteen years and women in particular, are classified as "without profession." About one quarter, or more than half of the "active" population, is in the army and navy (10,779), the most unstable population group.

TABLE 5
NUMBER OF "EUROPEANS AND ASSIMILÉS" BY PROFESSIONS
(1937)

<i>Professions</i>	<i>Number</i>	<i>Per Cent</i>
Forestry and agriculture	705	3.4
Mining and Industry	1,172	5.7
Transportation	419	.2
Trade	1,517	7.4
Banking and Insurance	249	1.2
Liberal professions	1,795	8.8
Army and navy	10,779	52.6
Government officials	3,873	18.9
Total	20,509	100.0
Without profession	21,836	
Grand total	42,345	

Many soldiers and non-commissioned officers do not stay more than two years, or only return after a long absence imposed by their "colonial tour." It should be mentioned, however, that a good many of those engaged in other professions are recruited from among discharged army men, although this is not now as common as formerly, and also that many of the half-breeds, both recognized and unrecognized, are the children of soldiers and Indo-Chinese women.

French government officials numbered 3,873 at the beginning of 1937; those branches employing the greatest number are first, the administrative services proper; second, the customs; and third, the police (native guard and constabulary). There were 4,366 persons in the services in 1914 and 4,836 in 1929 before the depression brought about great reductions. This decrease was also desirable from other points of view.

The necessity of reducing the number of European officials and replacing them with natives, wherever this substitution will not harm French rule or the colony's steady development, has long been obvious. Because of his very way of life and the stability of his residence, a native can get along on a smaller salary than a European in the same job. It is not only useless, but dangerous as well, to maintain in the colonies a white proletariat which is ill-paid, dissatisfied and without prestige. Moreover, public office should offer greater and greater opportunities to the graduates of Indo-Chinese schools who, if not given jobs, readily become embittered, resentful and desperate. This substitution of Indo-Chinese for Europeans has, of course, been hindered by the advance of direct rule and by certain French traditions connected with the system of parliamentary government. It has long been evident that the colonies were a means of satisfying the modest ambitions for government service, which are a well known and truly French predilection. This trend is disappearing, however. When the number of persons employed and their total salaries are analyzed, it is clear that the native's participation in public office has grown bit by bit at the European's expense. It is unlikely that the number of Europeans in the service can be much reduced today.

Besides the army and government officials, there are 5,857 Europeans of various professions, as shown in Table 5. The liberal professions include chiefly lawyers, doctors, teachers and Catholic and Protestant missionaries (the total number of missionaries is 629). Trade, banking and insurance, and transportation employ a total of 2,185 Europeans; it should be noted that since the colony's railways, with the exception of the Yunnan line, are government operated, Europeans engaged in this business are listed as "government officials." Mining and other industries account for 1,172 Europeans, which leaves only 705 for both forestry and agriculture. Furthermore the managers, accountants and superintendents hired by the big plantations must be deducted from this figure in order to get the number of true colonists, those who farm land which they either own or hold as a grant, and are thus firmly rooted in the colony.

This impermanent handful of Europeans, constantly replenished by newcomers from France, played the decisive role in the transformation of Indo-China. It is easy to stress the eccentricities and frailties of the European exile in the tropics, to picture the colonial as being without physical energy and moral stamina or as a handsome brute who is ruthless to the native. It cannot be sufficiently emphasized just how much these colorful one-sided descriptions distort the truth. The real situation is much more encouraging. Violent treatment of the natives has become the exception and is severely repressed.

The European living in a really isolated outpost has become a rarity in Indo-China, whether he be official, forester, planter, miner, army officer or missionary. Electricity, the refrigerator, the radio and the automobile have almost completely transformed his daily life and overcome his former isolation. Is the proportion of "queer characters" higher here than it is in France? Perhaps opium, the bad effects of which are apt to be exaggerated by those in France—they are undoubtedly less serious than alcoholism at home—helps to mark a certain number of colonials as "odd." But they are a minority. On the whole, between furloughs, most Europeans undoubtedly lead a life which is easier than it is in France—without anxiety, comfortably routine and often rather stay-at-home. For all their exotic character, the cities of Indo-China with their terrace cafés where one may sit and chat idly while sipping an apéritif and see shirt-sleeved shopkeepers opening for business each morning, preserve qualities of French provincial life which are not the least of the charm of Hanoi and Saigon and come as a surprise to Europeans from neighboring colonies. Life here is industrious too; colonial idleness, the long siesta under the punkah's pleasant breeze, are only persistent legends. Most Westerners work worthily and conscientiously and many with a real love for their jobs. For the best of them, the country provides the opportunity for enthusiastic and happy work, the results of which are the main justification of the power and privileges of the white people.⁶

⁶ It is interesting to compare the "European" settlement of Indo-China with that of neighboring colonies. The latest census of the Netherlands

THE CHINESE

Chinese have migrated to Indo-China from the earliest times. Population pressure in the valleys of the Yellow River, the Yangtze and the Sikiang has not only had the effect of pushing south the Thai, Man and Meo tribes and those which were, by mingling with the aborigines, to become the Annamite people—in short all whom the Chinese call barbarians—but it also induced the migration of the Chinese themselves to exploit and colonize this tropical country.

As long as Annam was under China's political domination, it was open to Chinese immigrants, and they came in increasingly large numbers after the fall of the Han dynasty in the 3rd century A.D. There is no accurate record of the size or fluctuations of this migration but it certainly had a considerable influence on the development of Annamite civilization. As officials, colonists and artisans, the men from the North

Indies (1930) has been analyzed by M. H. Lehmann in the *Koloniale Rundschau* (Volume 2, 1938, pp. 97-114). The percentage of "Europeans" in proportion to the total population of the Netherlands Indies is double what it is in Indo-China (0.4 per cent instead of 0.18 per cent), but the number of half-breeds included in the "European" category is proportionately higher; it is estimated to be at least 100,000 and represents 42 per cent of the 240,000 "Europeans" in the Indies. It should be noted, however, that it is impossible to determine in either country the number of half-breeds who lack European status.

The age groups among the "European" population have a much more marked colonial character in Indo-China than in the Indies (Lehmann, p. 101). Men aged 20 to 40 years are more numerous in Indo-China in relation to the lower age groups, and the proportion of men to women in that age group is much greater in Indo-China. The contrast is naturally even more marked between Indo-China and the island of Java, since the latter has long been a white colony; but the more pronounced "colonial" character of the European population in Indo-China is also apparent when compared with the other islands of the archipelago, the Outer Islands.

There are also great differences in the professions of the "Europeans." In the Indies, 27.8 per cent are engaged in agriculture, forestry, mines and industry (as compared with 9.1 per cent in Indo-China), 13.4 per cent are in commerce and banking (compared with 8.6 per cent in Indo-China), 9.66 per cent are government officials (18.9 per cent in Indo-China) and the army and navy account for 10.5 per cent (52.5 per cent in Indo-China). It should be added, however, that the two censuses are not comparable and that they were not made at the same time. Since 1930 Holland has reinforced its garrison in the Indies.

brought to Indo-China their agricultural and industrial techniques, as well as their political and religious ideas. After Annam gained its independence, it still continued to receive Chinese immigrants. When the Europeans arrived, foreign trade was already in the hands of the Chinese; at the beginning of the 17th century, there were many Chinese merchants at Faifo, then the principal trading center and accessible by the Tourane River. After 1640 Japanese trade at Faifo began to fall off. The Chinese brought in porcelains, paper, tea, and even some Western commodities, and took away in their large junks silk, rice, cinnamon, sugar, pepper and precious woods.⁷

Changes of dynasty favored the exodus and permanent settlement of Chinese in Indo-China. Thus in 1679, two Chinese officers arrived at Tourane with 3,000 men and 50 junks. They had been friendly to the Ming dynasty when the Manchus overturned it, and refused to submit to the new rulers. The sovereign of Huê sent them to the Mekong delta where Annamite infiltration was beginning; they established themselves at Bien Hoa and My Tho and joined in the wars against the Cambodians. A little later, historical records show that an adventurer from Kwangtung named Mac Cuu settled at Ha Tien on the shores of the Gulf of Siam and hired out his and his men's services first to the Cambodian king and then to the Annamite ruler. It was about 1778 that Chinese merchants founded the city which the Annamites called Cholon, "the great market place," and which is still the center of the water traffic routes of the south.

We know that in the course of centuries many Chinese intermarried with Annamites and Cambodians. This is still going on. Chinese immigration has been encouraged by the European occupation, which soon established order and security and stimulated economic activity. Almost all these immigrants came from southern China. A few came by overland routes, as the Yunnanese are doing today and the Hakkas did formerly. But the great majority came by sea from the provinces of Kwangtung, Fukien and Hainan, embarking at the ports of Canton, Chanteou, Amoy and Hoihao. The rich

⁷ C. B. Maybon, *Histoire moderne du pays d'Annam (1592-1820)*, Paris, 1919, p. 52.

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and well-to-do Chinese travel on big liners like Europeans; but most of the immigrants are crammed together in picturesque, ill-smelling groups on the decks of small boats—either Chinese or English—and must provide their own food during the voyage. After passing through the immigration formalities, they are separated, depending on where they are from, among the offices of the various guilds which take charge of them henceforth. The largest and richest of these are those at *Canton and Trieu Chau (Chan Teou)* which supply most of the merchants, the one at Hainan which provides many coolies and farm laborers, and the one at Fukien. According to the Cochin China census, which is only approximate, in that country alone there were 44,000 Chinese in 1879, 56,500 in 1889 and 120,000 in 1906. In 1912 there were 293,000 Chinese living in all of Indo-China. The number grew to 400,000 in 1926 and went as high as 419,000 in 1931, after which it fell rapidly, as the worldwide depression worsened. Beginning in 1935 it started increasing again and in 1936 there were 326,000 Chinese in Indo-China.

TABLE 6
NUMBER OF CHINESE IN EACH OF THE COUNTRIES OF
INDO-CHINA AND THEIR PERCENTAGE TO THE TOTAL POPULATION

Country	Total Population	Density of total population per sq. km.	Number of Chinese	Percentage of Chinese to total population
Cochin China	4,616,000	71	171,000	3.7
Cambodia	3,046,000	17	106,000	3.48
Tonkin	8,700,000	75	35,000	0.4
Annam	5,656,000	38	11,000	0.19
Laos	1,012,000	4	3,000	0.3
Total	23,030,000	31	326,000	1.42

Chinese are very unevenly distributed throughout the country⁸ and are much more numerous in the two southern countries of Cochin China and Cambodia than anywhere else (85 per cent of them are here). The proportion of Chinese in

⁸ Wang Wen-yuan: *Les relations entre l'Indochine française et la Chine*, Paris, 1937. There are two interesting graphs in this book describing the distribution of Chinese by provinces, according to the 1931 census.

relation to the native population is also much larger in the South (See Table 6). There are 126,000 Chinese (38 per cent of the immigrants) in the six cities of Cholon, Saigon, Phnom Penh, Hanoi, Haiphong and Nam Dinh, and 106,000 in the three southern settlements, but only 20,000 in the Tonkin delta.

As a matter of fact population pressure developed in the northern plains at an early date; not only has the entire area there been under cultivation for a long time but the people, especially the Tonkinese, have had a gradual admixture of Chinese blood and have acquired considerable skill, if not real mastery, of trade and industry. This has limited the scope of the activities open to new immigrants. The overpopulation of the Tonkin and Annam deltas makes possible the export of only a small part of the agricultural production, and, by the consequent reduction of the natives' buying power, restricts foreign trade, one of the greatest interests of the Chinese. Modern industry, especially mining, is almost entirely in the hands of Europeans who also control both the coal and mineral trade.

On the other hand, the colonization of southern Indo-China is quite recent and is still going on. The arrival of Annamites in the Mekong delta in the 17th century apparently coincided with renewed Chinese immigration resulting from political difficulties following upon the fall of the Ming dynasty. Using their influence cleverly in the conflict between Annamites and Cambodians, the newcomers acquired an important position in Cochin China, particularly after the founding of Cholon, which had been made the great port for river traffic by the construction of canals. The increase in the number of Chinese in the last fifty years shows that they have profited even more from the efforts of the French. Dredging, by constantly extending the cultivated areas of central and western Cochin China, has given the Chinese traders, who are the leading rice merchants, a new export commodity. In addition, the peoples of the south, for ethnic and climatic reasons and also because the struggle for existence is less difficult in these less populated areas, did not have the same industrious and ingenious qualities as the natives of the northern deltas. Because there

was less need they had not developed the same aptitude for trading and crafts, and this left a vast field open to the Chinese immigrant.

As in all the countries of Southeast Asia where he has settled, the Chinese in Indo-China is seldom a rice-grower. A single group, the Hakka, are the exception to this rule. Less Chinese than the other immigrants, they crossed the land frontier, pushed back the Annamites and Thai and settled in the alluvial plains and low hills bordering China between Mon Kay and Tien Yen. They live in little villages scattered over the country, subsist on carefully irrigated rice farms and fishing⁹ and appear to be firmly rooted peasants. In other places the Chinese have specialized in certain highly skilled cultivations,¹⁰ as for example, *the market gardens adjoining large cities, especially in the south*. At the time of the arrival of the French, the Chinese had a monopoly on pepper cultivation and have retained it almost completely; with the exception of one French company, all the pepper farms near Ha Tien and Kampa on the coast of the Gulf of Siam are owned by Chinese, who excel in the meticulous care demanded by this exacting cultivation. Chinese would almost certainly have taken a more important part in rubber cultivation in Indo-China, just as they did in Malaya and the Netherlands Indies, if government regulations had not practically excluded them from the red land grants. A Chinese coolie is seldom found on European plantations in Indo-China; Annamite laborers from the deltas of the north are generally preferred because they are cheaper and more manageable.

Until recently Chinese were valuable as construction workers, for instance in building the Yunnan railway; but they became less necessary as native laborers were trained. Technical education now makes it possible for the Annamite to prepare himself for finer work. Modern industry still employs a certain number of Chinese skilled workers, however, such as timbermen, carpenters, blacksmiths, mechanics, etc.

⁹ These Chinese in Tonkin should not be confused with those who sail every year from the ports of South China to fish in the waters of the gulf as far south at Vinh.

¹⁰ E. Dennery, *Foules d'Asia*, Paris, 1930, p. 133.

The Chinese can rise above the status of wage earner to the management of business, ranging from the smallest to the most lucrative. Many are in business for themselves as artisans, in some cases employing other workers and apprentices. Some work in cities as tailors, shoemakers and joiners. Particularly at Cholon the variety of Chinese manufactures is extraordinary; there are buildings divided into seemingly identical compartments, which shelter the most diverse manufactures—food pastes, basketry, boots, paper boxes, brushes, candles, etc. Here is a duck raising establishment where the eggs are being put into incubators filled with paddy chaff; when ready to hatch, they are set out on a piece of screen where hundreds of ducklings emerge cheeping from their broken shells. In an old shed, glass makers are blowing paste through a long tube to make bowls, bottles and lamps. Elsewhere looms placed side by side operate in crowded rooms. The influx of immigrants, and especially women immigrants, in the last two years has greatly helped the development of these workshops, so numerous in the large cities of China such as Shanghai and Tientsin. Around Mon Kay, the Chinese have set up shops for ceramic making, and at Haiphong they are engaged in machine and ship construction. The law does *not* permit Chinese to participate in mining as they do, for example, in British Malaya. But they set up sugar refineries on the plains of Cochin China and own one at Tay Ninh. They also operate most of the sawmills in southern Indo-China. Chinese rice mills prepare most of the rice which is exported. Finally, in urban centers, where Chinese are permitted to own land, they are often large property holders. To mention only one example, one of the richest Chinese in Indo-China is reputed to own half the ground in Saigon.

It is in trade that the Chinese finds the best field for his talents and from which come his greatest profits. He has certain qualities which Indo-Chinese usually lack: he has foresight and perseverance, he is economical and also knows when it is wise to speculate and spend liberally. He has a unique sense of the value of cooperation and does not try to work alone. Mutual aid societies and trade unions abound among Chinese immigrants; in 1926 there were 70 Chinese unions

in the city of Cholon alone; employees of the smallest companies are unionized, openly or under cover, with regulations and passwords which make *unorganized* competition extremely difficult. While he is better informed, more industrious and more methodical than the native, there is no essential difference between the Chinese and the Indo-Chinese; they are very similar in temperament and attitude of mind.

It is this which gives the Chinese a big advantage over the European merchant. He can live as the native does, or on a slightly higher plane; he is easily acclimated in the country which adjoins his own, and does not require the standards of hygienic conditions and comfort indispensable to the European; he learns languages readily and quickly gains an understanding of the local *psychology* which, although less refined and developed than his own, is nevertheless similar in character; he never experiences that feeling of misunderstanding and basic incompatibility which so often overwhelms the European in dealing with native behavior and reactions. Because the Chinese understands him, he is better able to gain the native's confidence and for the same reason, can deceive him more easily. He knows how to make himself indispensable as an intermediary between the European and the Indo-Chinese. The government has used Chinese for many tasks which were too distasteful for Europeans, for example, to collect taxes in the markets, feed prisoners and work the salt pits; in Cambodia he leases the Great Lake fisheries, and then very often sublets them.

Consequently, it is the Chinese who is the best equipped to tap the agricultural crops, the country's greatest export, whose production is divided among a very large number of peasants. The methods by which he has taken over, uncontested, the monopoly of the rice trade, the most important single export commodity, have often been described. He has developed a comprehensive system of rice purchasing which covers Cochin China and Cambodia without a gap. Above all he combines trade and usury to a remarkable degree. Speculating on the peasants' improvidence rather than on the crop yield, he makes loans to the native, usually payable in kind at harvest time; the interest rate is so high and the bor-

rower so indolent that the debt is never fully repaid and every year the larger part of the crop goes to the Chinese as interest payment. Located throughout the country the Chinese is in constant touch with the peasant; he is the small tradesman in the rice-growing centers who, while accumulating supplies of the cereal, is also making big profits on import products; he is the broker or news chronicler who visits the smallest hamlet; he is the collector who peddles or loads sacks onto carts or trucks; he is the owner of the bulging junks which transport produce down the river to Cholon—for the Chinese is master of almost all the river navigation on Cochin China's water ways. The center of his activity is at Cholon, where the big buyers, manufacturers and exporters work closely together in a maze of overlapping interests, very hard to disentangle.

The Chinese also play a leading role in the export trade of other Indo-Chinese products, such as fish and hides. In Quang Nam, Faifo and Tra My it is the Chinese who profits most from the Moi cinnamon trade, a business which he carries on with the aid of Annamite middlemen called "cac lai." The gathering of forest products explains why Chinese are also relatively numerous in certain interior provinces like Kratie in northern Cambodia. On the whole, however, there are few except in the plains, nor are they found, as was once hoped, clearing uncultivated lands in the back country; they are primarily middlemen.

In French Indo-China, as in neighboring countries, the Chinese problem is one of the most controversial questions. It is also one of the most intricate and there are as many suggested solutions as there are points of view. The Chinese are criticized, and often with good reason, for their unscrupulousness and their harsh treatment of the natives; their practice of taking advantage of the shortcomings and poverty of the peasants is quite rightly termed hateful, as is their shrewdness in skillfully evading the laws and regulations imposed on them, in avoiding all official control, and in working under the cover of unstable and irresponsible associations. They are denounced as parasites who do not create wealth but fatten on the riches created by Indo-Chinese labor, benefiting the while from the security established by Europeans and the

roads and railways which European technical skill and capital have built. The Chinese are branded as speculators, shrewdly taking advantage of monetary instability; estimates are made of the sums of money sent each year to China, and it is emphasized that the Chinese returns shamelessly to his native country as soon as he has made his fortune, or, in the event of bankruptcy, he suddenly disappears.

These criticisms, aggravated in trying times, should be somewhat tempered. While the *shrewdness of the Chinese* must be admitted, it cannot be justly claimed that his activities are all harmful. In many of their material and spiritual characteristics the native civilizations testify to the age-old influence of the Chinese. Unlike the Westerner, he has not ruthlessly imported the revelations of a new world. His activities, no less influential, have been undertaken gradually. His colonization in Indo-China is also not wholly to be condemned.

The natives entertain mixed feelings toward the Chinese; there is the Annamite merchants' envy of a richer and cleverer rival and the grudge of the peasant in debt against an unyielding and pitiless creditor. Sometimes quarrels flare up which now and then break into riots; Chinese merchants are attacked and robbed on the highways; in 1927 Annamite dock hands overran the Chinese quarter in Haiphong, plundering stores and burning workshops. There were several casualties and scores of wounded. However, incidents such as this are the exception and do not result from any deep-seated or basic hatred. If the Chinese is so well able to exploit the native, it is because he understands him completely; he adopts pleasant manners, hiding his greediness behind a mask of good humor; he is always on hand in time of dire need, ready and willing to lend the necessary funds. Were it not for him to whom could the peasant go to borrow money to tide him over until the next harvest or to pay for family celebrations?¹¹

¹¹ "Although the Chinese are the most proficient in combining the arts of trade and money lending, they are not the only race who practices usury; it is also carried on by Indians, 'chetties' who come chiefly from Madras Province, and by some Annamites. It should also be emphasized that the Oriental method of lending money has certain advantages for improvident borrowers. Usury has many advantages in that it

His services are needed, his skill admired and he comes to be valued in his community. The Chinese is considered an excellent match and a good provider for his wife or concubine. As a rule the Chinese comes to the Colony alone. He is either a bachelor or has left his family at home, planning to return eventually to China. There is a great deal of travel back and forth to China among the emigrants; the Chinese communities, although undoubtedly more permanent than the European, are nevertheless renewed rather fast. Since the 1911 Revolution, however, there has been a noticeable tendency toward remaining permanently in Indo-China. The proportion of women among Chinese immigrants has increased. In 1923 and 1924, according to the immigration records, 23,777 women and 41,963 men entered Indo-China; in 1934 and 1935 the comparable figures were 24,812 and 36,622. At the port of Saigon alone, between January 1 and October 1, 1938, 13,551 women and 16,844 men entered the country from China—an indication of the Chinese desire to avoid the disorders harassing their own country.

Nevertheless, a balance between the sexes has not yet been achieved. Even when a Chinese brings his wife with him, he often takes at least one or more native women as well. The half breeds born of these unions are generally sturdy and adapted to the climate, and evidence the influence of their Chinese heritage. In the two countries where they are the most numerous, Cochin China with 62,000 in 1936, and Tonkin with 11,000, children of Chinese-Annamite unions are separately classified in the census. In addition, there were 68,000 Sino-Cambodians in Cambodia in 1921. These figures, however, do not fully indicate the infusion of Chinese blood, because, after two or three generations the half breeds rapidly amalgamate with the native population. The Chinese heritage is quite obvious in the new provinces of Transbassac and Bac Lieu in Cochin China. Many of these half breeds, especially

demand a minimum of security and formalities. But since the borrower is always under threat of urgent necessity, he prefers the lender who responds forthwith to these needs. Usury is the price paid for the accommodation and the risks which are involved." (M. Ganay, *Bulletin du Comité de l'Indochine*, June 22, 1933, p. 20.)

in Cambodia, become farmers and thus the Chinese penetration begun so long ago goes slowly forward.

The Europeans recognize the value of the service rendered by the Chinese. There are few businesses which do not employ some, entrusting them with the tasks which demand their special understanding of native psychology together with leadership, punctuality and versatility. For example the Chinese are compradors in the banks and big commercial firms; not only does the exporter of rice, corn and copra need his services, but European imports are also often distributed throughout the colony and into the depths of the back country through his good offices. The Chinese grocery store stocks everything: rice vermicelli and Amieux preserves, incense sticks, soap from Marseilles, silk from China and cotton goods from France are all sold as a matter of course. Is the Chinese to be criticized, after thus proving his usefulness, for his desire for independence and his often successful attempts to escape from the white man's economic tutelage?

In fact it would seem neither right nor wise to decrease the activities and number of Chinese immigrants by restrictive measures, troublesome regulations or excessive taxes. The importance of China in the colony's foreign trade should be remembered, and especially her role as a buyer of Indo-China's exports. It is decidedly to the colony's interest to maintain good relations with the Chinese government or governments; a boycott of her products could seriously affect the colony's economy. Neighboring countries may be taken as examples; neither the Netherlands Indies, Thailand, nor British Malaya—all countries where the Chinese are relatively more numerous than they are in Indo-China—could suddenly evict the Chinese without seriously injuring their economies. A more liberal policy toward the Chinese might even have encouraged the more rapid growth of the colony.

The role of the Chinese immigrant must be carefully considered since it is an important one and eviction is not feasible. The only reasonable remedy for his objectionable methods which is in accord with the French government's responsibility toward the Indo-Chinese people is to steadily decrease the demand for Chinese middlemen between the natives and

the French and to supplant him in those tasks at which he excels. The influx of Chinese is not threatening to submerge the colony and it seems unnecessary to put up new barriers against immigrants. His activities should be controlled; he should submit to regular accountings as does the European merchant, and his evil practices should be curbed; but all this should be done with a minimum of annoying regulations. Otherwise, it would be far better to try to get along without him entirely.¹²

The 1929 depression decimated the Chinese colony in Indo-China. In 1931, 1932 and 1933 emigrants returning to China always outnumbered the new arrivals in the colony. One of the keenest observers of Indo-China's economy wrote in 1933: "Insofar as it was in the hands of the Chinese, the whole commercial structure of Cambodia has crashed. There is practically nothing left of it, and the same thing has happened in Cochin China, although to a lesser degree. . . . With one or two exceptions, the Chinese, who had a virtual monopoly of rice distilling, have disappeared; only one out of every four of those who monopolized the sale and purchase of paddy are still in the colony, and nine out of ten of those engaged in the sale of hardware and fabrics have gone. The fact must be faced that a whole new generation of Asiatic merchants is on the way to replacing those who have disappeared."¹³

Today this new generation is established, but the Chinese did not regain all the influence they lost. Always leaders in the domestic rice trade, they no longer hold the husking monopoly; they have competition in this field from the French and even from the Annamites who operate a number of small husking mills, especially in Cochin China.¹⁴ The big increase in the volume of trade between Indo-China and France, at the expense of the countries of the Far East, has contributed to the dislocation and decline of Chinese business in the colony. In addition, the native education provided by public

¹² See Dennery, *op. cit.*, p. 157. Also A. Touzet, *L'économie indochinoise et la grande crise universelle*, Paris, 1934, p. 157.

¹³ Ganay, *op. cit.*, p. 16.

¹⁴ Annamites are also manufacturing charcoal in the mangrove forests of Camau to replenish Cochin China's fuel supply; this industry had also been a Chinese monopoly.

schools and private institutions now makes it possible for them to supplant Chinese employees in work for which they had previously been considered *wholly unfit*; this substitution will grow steadily. In banks and large business firms, the *comprador* has lost much of his former importance; he is no longer the universal informer and touter, responsible for his clients' solvency, but is often a mere middleman who carries out orders prepared by some superior. Cooperative methods and the improvement of agricultural credit systems will also undoubtedly deprive the Chinese of that vicious and powerful weapon—usury. But it must be emphasized again that these changes cannot be made in a day and that for some time to come Indo-China will have to put up with the Chinese whose contribution is needed and has not, after all, been wholly harmful.

The awakening of Chinese nationalism inevitably increases the claims of the Chinese emigrant. He is demanding that his role in Indo-China be recognized. As a result of the 1930 Convention of Nanking, Chinese consulates were set up at Hanoi, Haiphong and Saigon and Chinese were granted the same rights of immigration and travel in Indo-China and the same basis of taxation and fees as the foreigners of most favored nations. They are now designated by the initials B.S.P. (Asiatics enjoying privileged status—*Asiatiques bénéficiant d'un status privilégié*).¹⁶

THE NATIVES

Europeans are and will continue to be but a tiny minority in Indo-China. Nor does it seem likely that the number of Chinese will increase very much in the future, although they adapt themselves to the country much more easily. Both these peoples have played an important part in the transformation of the colony and have served as leavening agents in the development of its resources. But, in doing this they have depended on the local population which by furnishing a

¹⁶ In addition to the Chinese, there are 6,000 "Asiatic foreigners" in Indo-China. These are mostly Indians who are British subjects, almost all of whom reside in Cochin China and Cambodia where they are brokers or money lenders. Most come from around Madras, others from the Sind.

plentiful labor supply, was essential to the process and thus constituted one of the principal factors in the country's economic evolution. Furthermore, this evolution has itself contributed a great deal to the transformation of the structure of native society. Ancient hierarchies have seen their power lessen; new social classes have been created; the development of capitalist enterprise has gradually increased the number of wage earners; a new élite has been formed, particularly among the Annamites, based on new activities introduced by the Europeans. Encouraged by the increased wealth and education which it has been given, and exposed to Western ideas, science and techniques, this class also hopes for a more important place in the government of their country.

Population Growth

According to the most recent official figures, Indo-China has a population of 23,030,000. "This figure is not based on a census made by counting records filled out by individuals or families," says the report of the Statistical Service, "but is an estimate based on the statements of native authorities, centralized and checked as far as possible in the chief town of each province."

Because of the tax system and the large amount of autonomy in the Annamite community, a census in the real sense of the word is extremely difficult to obtain. The taxes of ancient Annam were based on the registration but those persons enrolled on the village registers did not include all the male citizens between the ages of 18 and 60 who were subject to the poll tax. The list was prepared by the authorities whose sole desire was to show the smallest possible number of enrollees consistent with an appearance of accuracy. The tax was then assessed among the families within the community without governmental interference. For these reasons, every attempt to obtain precise information was considered by the natives as the first step toward an increase in taxes and was regarded with suspicion.

This mistrust continued to block the French administration. The apportionment of taxes among the families was always done by the village authorities. Obviously this facilitates the

official's work; furthermore, altering the tax system would certainly destroy village autonomy, the cornerstone of Annamite society. So the number of "enrollees" remains arbitrary. From these lists it is impossible to guess the precise population total, the relation between "enrolled" population and actual population varying sharply from one community to another. Moreover, an accurate census is very costly and the Indo-Chinese government has never had the available funds which the experts say are needed. However, efforts have been made to get a little closer to the true figure. At times printed circulars have been sent to the villages to be filled out by the heads of families; this was done in Cochin China and Cambodia in 1921 and in Tonkin beginning in 1926.¹⁶ But the methods used have varied from country to country, the choice being left to the local authorities. The French system of *état civil* or civil status has been instituted but on the whole works poorly even in the cities. It meets with least opposition in Cochin China because of longer French influence there and the better methods of supervision which direct government makes possible.

For all these reasons the official figures are only approximations; it would be unwise even to attempt to fix the possible margin of error; to suggest 10 per cent would be optimistic. In these circumstances can we venture to estimate the increase in Indo-China's population since the French occupation? The author wishes to emphasize the risks involved in making such an appraisal and the slim and uncertain foundation on which it rests.

The most interesting data on the movements of the Annamite population undoubtedly are those observed by missionaries in Christian villages. It is not the author's purpose here to analyze the difference between the partial and general censuses; this would involve extremely tedious work and the value of the results would still be doubtful. After comparing the conclusions of several experts, it can be stated that since the beginning of the century the Indo-Chinese population has increased at an average rate of approximately one per cent

¹⁶ See the *Annuaire Statistique de l'Indochine* for 1923-1929, pp. 58-60. Also P. Courou, *Les paysans du delta tonkinois*, Paris, 1936, pp. 139 ff.

per year and that around 1900 it numbered some 16 million.¹⁷ This increase has been due in part to the inclusion of new territory, since the province of Battambang which has a population of about 300,000 today, was only returned to Cambodia in 1907. In addition, the number of Europeans and Chinese, more especially the latter, has grown since 1900, although the surplus of immigrants does not seem to have attained 200,000. The principal reason for the increase is therefore certainly the excess of births over deaths among the native population.

It is certainly true that in Annam at least the mortality rate has dropped a good deal since the French occupation, as a result of a raised standard of living, the establishment of law and order and, above all, the curbing of epidemics by mass vaccinations. At the same time, the birth rate has continued to remain high, partly due to persistence of a strong tradition of ancestor worship. Infant mortality is still high, as knowledge of Western hygiene has not yet reached far into the countryside; but the great number of children spilling out of every village house still amazes the traveller.¹⁸

Population Distribution

The growing population of Indo-China includes a great number of ethnic groups which are very unevenly distributed.

Ethnic Groups. Of the 23,030,000 inhabitants, the Annamites total 16,679,000 or 72 per cent, and the Cambodians 2,925,000 or about 12 per cent, according to 1936 estimates. The overwhelming numerical superiority of the former is evident.

Because of inadequate statistics it cannot be stated that the

¹⁷ See F. Laurence, "Étude statistique sur le développement économique de l'Indochine de 1899 à 1923," *Bulletin économique de l'Indochine*, 1925, p. 134, and C. Robequain, "Notes sur les modifications du peuplement de l'Indochine française depuis cinquante ans," *Comptes Rendus du Congrès international de Géographie*, Paris, 1931, pp. 491-500. According to Gourou, the annual population increase in the Tonkin delta is more than one per cent. Gourou, *op. cit.*, p. 197.

¹⁸ According to careful abstracts of vital statistics, made in Hanoi since 1925 and at Saigon-Cholon since 1936, the birth rate is approximately 40 per thousand in the two cities and the death rate in the neighborhood of 30 per thousand. Half the deaths are of children under 15. The mortality rate for infants in their first year average 25 to 30 per cent of the number of births. (*Rapports au grand conseil des Intérêts Économiques et Financiers et au Conseil de Gouvernement*, Hanoi, 1938, p. 228.)

Annamites have increased more rapidly than the other indigenous people since the French occupation. Moreover, had the French not intervened the Cambodians would have been driven back by the Annamites very much more rapidly. At the time of the conquest the Cambodians had already been almost entirely ousted from the plains of Cochin China where, up to the end of the 17th century, they had been practically the sole inhabitants. In 1860 there were a few close-knit groups in the western provinces of Cochin China (Rach Gia, Tra Vinh, Soc Trang, Chau Doc, Can Tho and Bac Lieu); they still live there today, usually crowded together on the sandy slopes, or "giong" formed from the remains of old river bank promontories covered over by the Mekong's alluvium.

Around these gentle slopes which are often still wooded, the Annamite population has been spreading in a slow flood. In the western provinces of Cochin China the Annamites have grown more rapidly than the Cambodians, and it is they who have reaped most of the benefit from the big public works projects and the extension of rice plantations made possible by river dredging. There are only 326,000 Cambodians in Cochin China today as compared with 3,979,000 Annamites; moreover, the Annamites are filtering gradually, and peacefully, but constantly, into Cambodia where they number 191,000 as against 2,596,000 Cambodians; some of these Annamites have settled as farmers in the four provinces bordering on Cochin China, Prey Veng, Soai Rieng, Kandal and Takeo. The Cambodians' passivity in the face of Annamite infiltration is very often noted. Rather than struggle against the persistent invader, he prefers to leave home and move away, retaliating against him, in sudden fits of anger, with robbery and murder. On the whole, Annamite southward expansion has been going on without violence ever since the European occupation.

Although they comprise only 16 per cent of the total population of Indo-China, there are a great many other ethnic groups. Most numerous are the Thai, comprising about 6 per cent of the total population, or 1,375,000, who are divided almost equally between Tonkin and Laos; and the Indone-

sians, with 1,017,000 or about 4.5 per cent of the population, living mostly in the high plateaus of South Annam and Lower Laos. Neither of these two peoples are as homogeneous as the Annamites or Cambodians. The Thai have little more than a common language tie, and this, moreover, spreads far beyond the frontiers of Indo-China. Although they are distributed throughout a wide area, they are divided into several groups of which the Laotians are only the principal one.

As a race the Indonesians (known as Moi, Kha and Pnong, according to the districts where they live) are still in the earliest stages of cultural development. The most primitive of all the Indo-Chinese, they are even more heterogeneous than the Thai. The general statistics also distinguish a number of smaller ethnic groups: the Muong, congregated between the deltas and mountains in the central regions of southern Tonkin and northern Annam where they have lived from time immemorial; and the Meo and Man (or Yao), scattered throughout the mountainous regions of the north (Tonkin, northern Annam and upper Laos), more recent immigrants from China. There are about 200,000 Muong, and the Meo and Man combined probably do not exceed this figure.

Numerical distribution. As far as the economic evolution of the country is concerned, the numerical distribution of population is more important than the ethnic. Different tendencies are seen in the various groups, but cannot be wholly attributed to the consequences of physical determinism. On the whole, they seem to be closely related to the type of life led by the racial group, which in turn is determined by the group's spatial density. It is the map of population densities rather than the ethno-linguistic map which sheds the greater light on the various aspects and contrasts of the Indo-Chinese economy.

Comprising 72 per cent of the population of Indo-China, the Annamites take up scarcely one tenth of its area. They are primarily plainsmen; as soon as the land begins to be hilly they give way to other ethnic groups, far more sparsely settled. A contrast of population between plain and mountain is almost axiomatic in monsoon Asia, an antinomy which perhaps existed in Europe in distant times but which now persists only in certain Balkan regions.

In China and India, however, these differences tend to decrease; the plains' civilization—with some variations—is often found among peoples living at rather high altitudes and in fairly remote back country, as for example the pure Chinese living on the plateaus of Shansi and Yunnan. In India the plains' civilization has likewise penetrated into the rugged table lands of Deccan.

In this respect also, Indo-China is less advanced than her two powerful neighbors. Ethnic differences here are much more dependent on terrain and, with almost no exaggeration, it may be said that nowhere do the Annamites live at altitudes of more than 25 meters. They are crowded into the coastal plains, much the most densely populated areas of the colony.

Population density—that useful tool for comparisons with other countries—varies considerably in the different delta regions where Annamites reside. On the whole the intense crowding diminishes from north to south. This is not so much the result of smaller natural resources as of historical development, since from ancient times the settlement of Indo-China has resulted from the southward pressure of the overpopulated countries to the north. This south bound migration has progressed unevenly and is still in process.

For many years the Annamites were confined to the deltas of Tonkin and North Annam and it is in these districts where the greatest overpopulation in all Indo-China exists. Lower Tonkin holds the record, with an average of approximately 450 people per square kilometer, while in some small areas, with a total area of 260 square kilometers, as for example around Ha Dong and Nam Dinh, the rural population density is more than 1,500. These figures approach those of the most crowded regions in all monsoon Asia—the plains of Bengal and of Malabar in India, the plains of China, and the Island of Java.¹⁹ There are many villages comprising more than 3,000 peasants; the market places, where the Tonkinese gather, afford a picturesque panorama of the seething mass of people. In the deltas of North Annam, at Thanh Hoa and Nghê Tinh, there are certainly more than 250 persons per square kilometer, but not as many as in Lower Tonkin since

¹⁹ P. Gourou, *op. cit.*, p. 146.

the utilizable area is much smaller; here the peripheral regions of worthless land and rocky and uncultivable hillsides are relatively greater.

South of the Annam border the areas of dense population are limited to the deltas formed by very short rivers flowing down from the mountains. Annamites are thickly settled—more than 200 to the square kilometer—in these small coastal plains of central Annam, Thua Thien, Quang Nam and Quang Ngai, separated by barren spurs projecting from the mountain ranges right down to the shore. South of Cape Varella, the compact Annamite population is broken up into small settlements between the high downs and the steep ledge of the Moi plateaus. Each of these coastal groups represents a step in the Annamites' southward drive.

The Mekong delta differs greatly from that of the Red River. Not only do the Annamites still share the land in some of the western provinces with the Cambodians, but even in the section which they cultivate exclusively they have not had time enough to become as numerous as they are in the plains of Tonkin and North Annam. Only the central region between Saigon and Bassac, south of the Joncs plain, has a density over 150 per square kilometer. In no province of Cochin China does the rural population density rise to 200 per square kilometer, although in six Tonkinese provinces it is more than 400. In the central area of the *Camau peninsula* it is less than thirty and falls as low as ten in the mangrove swamps of the south.

The plains of Cochin China are not yet fully utilized; and there are large areas still unploughed. Although mostly inhabited by Annamites, the Mekong delta, because of its general economy, and rather sparse population, resembles Tonkin less than it does the deltas of the Menam in Thailand and the Irrawaddi in Burma.

The Cambodian plains, formed by the Mekong and directly adjoining the plains of Cochin China, support an even smaller population. To the traveller going up the river, its steep banks, crowded with houses built on piles and overlooked by the white *stupas* and the pagoda's carved roofs, still look densely populated as far north as Kompong Cham. The Cam-

bodians are often crowded on the muddy banks whose fertility is renewed by seasonal floods. Away from the river banks the little villages begin and are more and more scattered as the alluvial deposits over the rock sub-soil thin out. The provinces of Takeo with 83 inhabitants per square kilometer and Kandal with 88, except for Phnom Penh, are by far the most thickly populated in Cambodia; next come Kompong Cham, Prey Veng and Soai Rieng with 60, 59 and 52 respectively; Battambang has only 13. It is much more difficult to draw the line between alluvial and other soils in these provinces for some of them are exclusively delta lands since large parts of them encroach upon rocky strata.

Nevertheless, regardless of the corrections which a detailed study might make in these figures, the contrast still remains and it is fundamental to an understanding of certain facts. The southern plains of Cochin China and Cambodia are composed of soil whose fertility is not inferior to that of the overpopulated plains of Tonkin and North Annam, yet population in the south is much more sparse. This naturally led to the plan of encouraging Annamite emigration to the Mekong delta in order to alleviate congestion on the northern plains.

The great disparity in population density between north and south is accompanied by another and even more striking contrast,—the small extent of the lowland area as compared with the back country of plateaus and mountains, forming at least four fifths of Indo-China's territory.

To be sure, beyond some of the rice-growing plains inhabited by Annamites and Cambodians, there is a kind of middle region where the valleys are still open and which maintains a population whose density varies between ten and thirty, still very much lower than the average in the deltas. Except in Tonkin, however, this is a fairly limited bordering area. Here, away from the coastal plains there are some relatively populous areas, like the valleys in northeast Tonkin (Cao Bong, That Khé and Lang-son), and the banks of the Mekong near Luang Prabang and between Vientiane and Savannakhet. But these are exceptions. In most of the back country there are fewer than ten persons per square kilometer.

Laos, the only country in Indo-China which does not extend to the deltas, has an average of only four.

In comparison with the deltas of Indo-China, especially those of the north, overcrowded and poverty-stricken, the mountains and highlands seem practically uninhabited. To reduce this disparity remains the French government's greatest concern; it is also an essential step in harmonious economic development.

Problems of Migration

Labor requirements. The very uneven distribution of the native peoples has had important consequences for European colonization.

The heavily populated regions of Indo-China have offered relatively little opportunity to European activity. It is very difficult to make changes in areas like the deltas of Tonkin and North Annam, where practically every bit of cultivable land is already utilized. Doubtless the native methods of agriculture can be improved, but only very slowly. Western capital and techniques are not sufficient; the deep-seated traditions of twenty centuries on the land, during which his method of cultivating the soil has come to form an integral part of the peasant's life, must be changed. The land itself can be touched only with the greatest forethought. The farm lands have been set out by the native for his particular needs; high levees hold back the rivers; the villages and fields are spread out beneath the protection of these embankments and village life has evolved around this carefully laid-out countryside; in the overpopulated communities there is not one small detail without significance, not a patch of earth uncultivated. It is not possible to start brand new projects in this region as it would be in open country or new territory; all that can be done is to restore, correct and develop.

Circumstances were quite different in the southern plains, which had by no means attained population saturation. While in central Cochin China, between Saigon and the Mekong, large areas were already under cultivation, even greater areas still lay fallow. On the right bank of the Bassac beyond Long Xuyen and Soc Trang, stretched a great forest of "tram" trees

(*Melaleuca leucadendron*). This territory was practically uninhabited and reached as far as the coastal mangrove thickets, broken only by small flooded hollows. Here and there, some rice was intermittently cultivated, but the principal occupations of the semi-nomadic natives were charcoal burning, fishing, hunting birds for feathers and plumes, and gathering wax from wild bees. On this almost virgin territory European colonizing efforts had only natural obstacles to cope with. First of all, the land had to be drained and canals cut to permit the movement of men and of produce, and to bring the tides as far inland into the delta as possible. Undertaken in 1870 under naval supervision this work was continued with increased financial support. The area under rice expanded rapidly, approximately quadrupling between 1870 and 1930.²⁰ These new lands needed men; their existence encouraged Annamite immigration. They usually came in sampans, sailing up the new canals and bringing with them their meager belongings, their crates of chickens and pigs. On arrival they first lived by fishing and on the natural crops of the forests, but they gradually developed rice growing and it soon became their main livelihood. This recent colonization is entirely different in character from that of the northern deltas or even that around Saigon; instead of large villages located at regular intervals among the rice plantations or hamlets scattered throughout the dry regions, there are long rows of houses bordering the canals, which cut through the countryside in straight lines.

It was not only the extension of rice-growing which attracted immigrants to the south, but also the development of new crops undertaken by European capital and initiative. In the north, land suitable for European plantations was rather scarce. The coffee plantations of the Tonkin and North Annam deltas were the only ones of any importance. The warmer climate of the south was better suited to certain valuable export crops and was therefore advantageous for European agriculture. A geological factor is added to the advantages of climate, i. e. in southern Indo-China there are extensive basalts which, as they decompose, produce a rich soil

²⁰ See below, p. 220.

called "red lands." Plantations of coffee and tea do well on this soil in south Annam and especially on the Moi plateaus, but *hevea brasiliensis* has become the leading European crop in Cochin China. In this relatively uninhabited region, heavy forests first had to be cut down and a labor supply brought in for the maintenance of the plantations, all the way from the northern deltas.

Another branch of European business, mines, all of which were located outside the delta regions, required Annamite migration. The region most richly endowed in this respect is Tonkin, with its coal, zinc and tin mines; next in importance, although far behind in the total value of mining production and the number of employees, are the Nam Patène tin deposits in lower Laos.²¹

This brief review of the new resources brought to light by European activity indicates the trends which would affect future migration. In the first place, a labor supply had to be brought in for rice fields and other plantations in the south; next the northern and central regions of Indo-China, particularly the former, had to be supplied with workers for European industry, especially mining. It was right and natural that both demands should be met by emigration from the seriously overpopulated northern coastal plains.

Internal Migration Statistics. It is impossible to determine exactly the extent of Annamite migration from the northern to the southern plains since the French occupation, because it has only been recorded by the government in the last few years and then only in part. It is certain, however, that the traditional movement has proceeded, lessened somewhat perhaps by the protection which the French government has accorded Cambodians, but, on the other hand, encouraged by extensive irrigation projects and especially by the development of European crops.

According to various census and vital statistics data, it is estimated that between 1913 and 1929 the Cochin China population increased by about 60,000 each year, two thirds of which was due to the excess of births over deaths and one third to European, Chinese and Annamite immigration. In

²¹ See below, p. 249 ff.

the period under consideration this immigration (the excess of arrivals over departures) would therefore have averaged 20,000 a year. Since the average Europeans and Chinese immigration approximates 5,000 a year, the number of Annamite immigrants may be put at 15,000.

According to other sources this figure appears too high. Indeed, ever since 1919 the General Labor Survey shows a decrease in "organized" Annamite immigration to the plantations of the south. These statistics indicate that approximately 104,000 enlisted Annamite laborers debarked at Saigon from 1919 to 1934 and 52,000 were repatriated during the same period, giving 3,250 as the average annual surplus of organized Annamite immigrants. This surplus was highest in 1927, when 17,600 enlistees arrived at Saigon while only 2,222 were repatriated. From 1931 to 1933, on the other hand, departures exceeded arrivals, but since 1934 the rising price of rubber has again entailed an immigration surplus.

This particular emigration to the plantations of the south, called "organized" or "contract" labor because the coolies sign three-year contracts, is the only immigration which can be recorded with some accuracy. In addition, there is an unrecorded emigration of individual workers from Tonkin and Annam who come to work in the south. Some of them sign short-term contracts for plantation work; others stop off in the urban centers where they become small merchants, artisans and,—mostly—coolies. Of these free workers, an indeterminate number return to their native land after a longer or shorter time; the balance, doubtless fewer in number than the contract laborers, remain in Cochin China as permanent settlers.

For the most part the immigrants from the north come from the most overcrowded provinces of Tonkin: Nam Dinh, Thai Binh, Ninh Binh and Hai Duong sending the largest number. Almost all the non-Tonkinese immigrants come from the plains of north Annam, Thanh Hoa and Nghê Tinh, which are also very heavily populated, particularly the latter; but they are far outnumbered by the Tonkinese. The deltas of central and southern Annam send few laborers to the south, most of their emigrants going to the plantations or the Moi plateaus.

Cochin China's rubber plantations and great urban center are located in the eastern provinces where the earliest settlement took place. In view of the great and rapid extension of rice plantations in western Cochin China, it might be assumed at first that the Tonkinese would have taken an even greater lead in colonizing this new region.

Although the history of the settlement of this area has yet to be written, there is no question but that the development of these virgin lands was not the result of a large transplanting of natives direct from the northern plains. It is above all the work of the Cochin Chinese themselves. There has been a flow of population from eastern and central Cochin China to the western provinces and to the Transbassac, although the latter is still only thinly populated. The methods of land ownership and soil development there differ considerably from those prevailing in Tonkin, Annam and even in the old established provinces of Cochin China. It is no longer a matter of the majority of small owners cultivating their own fields. It is the medium-sized and large estates which predominate increasingly toward the west. The big landowners are sometimes Europeans but most of them are Annamites already settled in Cochin China who have put their personal fortunes, often augmented with borrowed capital, into rice-growing.

These great western estates are rarely run as individual units. They are almost always divided into lots of five and ten hectares, leased out to farmers who are called *ta dien*. But there are not enough *ta dien* to carry out all the heavy work of the rice plantations, so that day laborers, most of whom come from the central and eastern provinces, are also employed. They travel in gangs, especially during transplanting and harvesting, under a leader who deals directly with the employer.

Here, therefore, agricultural day laborers form a floating population, larger than that in Tonkin or Annam. It is this group which, by a rather natural succession, furnishes many of the relatively stable settlers for these steadily expanding agricultural regions, for example, the small free landowners and especially the *ta dien*. Among the new settlers there are, of course, some recent arrivals from the northern deltas; for

example, after 1929 the gangs of agricultural day laborers were enlarged by Tonkinese emigrants who, up to that time, had been employed in cities or on rubber plantations and were out of work because of the depression. However, these were only a small minority compared with the Annamites whose families had already been settled in Cochin China for several generations.

The number of Annamites migrating to the south is astoundingly small compared to the total population in the northern delta. Subtracting the number of those who return north, it seems quite clear that a yearly average of not more than 3,000 to 4,000 persons has remained in Cochin China and Cambodia since 1920.²²

More surprising still is the very thin stream of emigration into the hinterland of the overpopulated deltas, into the mountains and plateaus of upper Tonkin, upper Annam and Laos. It is true that the mines employed 49,200 workers in 1937. But 40,000 of these were working in the Tonkin anthracite mines which are very close to the delta and necessitate only a very short trip for the laborer. The same can be said of most of the European plantations of Tonkin and north Annam, located as they are on the edge of the deltas. Those on the Moi plateaus, on the contrary, must recruit their labor from the coastal plains of central or south Annam, at a distance of 100 kilometers or more.

Migration to the mines and plantations is almost entirely temporary. Annamite colonization has gained only a very small foothold in the back country. It is true that there are evidences of Annamite expansion into the marginal regions beyond the deltas and along the valleys which lie at the base of the mountains, but as a rule it is very slight and often seems to be due to a transformation or "Annamitization" of the native population rather than to the settlement of immigrants from the plains. A similar "Annamitization" has been seen among the Man and, especially, the Tho in Tonkin, the Muong in north Annam and the Moi in Cochin China. It is

²² The 1936 census listed 59,900 Annamites from Tonkin and Annam residing in Cochin China and 11,300 in Cambodia; these figures obviously refer only to recent emigrants and are very rough.

believed, moreover, that thorough study will prove that many of the inhabitants of central Annam are also "Annamitized" Moi or Chams, for example, in Phu Yen with its striking landscape of hillsides covered with terraced fields.

The Annamite settlement among people of different race is on the whole unusual. The most striking instances of small Annamite colonization in the hinterland are those on the plateaus of south Annam. In the Kontum and upper Donnai provinces there are about 25,000 Annamites, perhaps half of whom are settled and form compact nuclei in the Moi country. But this number is very small compared to the overpopulation on the plains. It should also be mentioned that Annamite fishermen and rice farmers have settled in parts of Laos (Bassac, Paksé and Thakhek) and that some groups have settled in the valleys of upper Tonkin. But in all Indo-China there are less than 150,000 Annamites living outside the deltas or the adjacent foothills. And even this is temporary migration, largely made up of coolies working on the plantations and in the mines, small merchants, hawkers and coolies, government clerks and militiamen, and servants in European households.

Indo-China's lack of demographic balance is still just as extreme as it was when the French occupation took place. It has, in fact, shaped the country's economic evolution. The overpopulation of the northern deltas has favored European activities, permitting the swift execution of large public works and the development of mines and plantations. But today it appears to be a heavy obligation and an increasingly painful responsibility. The population of the deltas of Tonkin and North Annam increases at the rate of 100,000 to 150,000 a year. Resources must be developed more rapidly than the population growth, and this cannot be done except by transferring some of the population from these overcrowded areas to the huge regions which look empty in contrast.

Obstacles to Annamite Emigration

From a distance the problem looks simple. A map of population densities has black patches along the sea coast, these are the overpopulated plains; inland are large white spaces

almost empty, where, it is said, there are good soils capable of producing a variety of crops. All that seems necessary is some engineering, for instance the building of adequate means of communication, in order to decide how many people should be moved to bring about a more equal population distribution.

In fact, however, there are many obstacles to Annamite emigration. In the first place, there are the unhealthy conditions frequently prevailing in these more remote regions, and especially the serious types of malaria. The belief is still rather widely held that the coastal plains where the Annamites live, and the fields which are flooded at least part of the year, must be fever-ridden. As a matter of fact, malaria attacks in the cultivated plains are rare and usually mild. Recent studies have shown how complicated is the whole problem of malaria.²³

An important factor in the complex malarial problem are the climatic conditions which affect the human body's resistance either favorably or unfavorably, as well as the blood parasites and, finally, the carrier mosquito. The types of *anopheles* which can transmit the fever are very numerous and there are great differences in the number and virulence in various regions. For example, *anopheles culicifacies*, one of the most dangerous mosquitoes of the Indian peninsula, is found only in Indo-China in the Mekong valley north of Thakhek, in the back country of Nghê An in north Annam, and around Lai Chau on the upper reaches of the Black River. *Anopheles minimus*, carrier of a type of fever which is often very severe and complicated by pernicious bilious attacks, breeds not in stagnant water but, on the contrary, in clear, running water. This doubtless explains the exceptional hazards in some of the deep valleys in upper Tonkin, for example, near Hoa Binh and Lao Kay. As mentioned before, disturbing virgin soil often brings about a disastrous recrudescence of malaria. Often coming from considerable distances coolies have to cross contaminated regions and succumb

²³ See Dr. H. Morin and P. Carton, "Contribution à l'étude de l'influence des facteurs climatiques sur la répartition de l'endémie palustre en Indochine," in *Bulletin économique de l'Indochine*, 1934, pp. 459-480; and Dr. H. Morin, *Entretiens sur le paludisme et sa prévention en Indochine*, Hanoi, 1935.

very quickly to the infection in their new surroundings where they must work. As a result, there were many deaths among the Annamite and Chinese coolies who came to the Red River and Nam Ti valleys in 1904-1905 to work on the Yunnan railway. Again in 1929, the surveying of Colonial Route 20 from Saigon to Dalat over Blao Pass, caused grave apprehension. Even the *mobile public works gangs*, usually but slightly affected in similar instances, had been swept by fever. The yard of one entrepreneur was entirely deserted by his coolies. On the advice of the Pasteur Institute camp sites were carefully selected, the dangerous pools of water covered with oil, and quinine given to all workers. As a result 150 kilometers of roadway were built in less than two years, with an average mortality rate which never again exceeded eight per cent.

Agricultural enterprises also have to contend with the evils of malaria. The red lands of the south, where European plantations were developed on land that had once been densely forested, at first had a very bad reputation.

By weakening his constitution, the native's undernourishment naturally makes him more susceptible to malaria, a susceptibility which is even greater among Annamites than among Europeans. Be that as it may, malaria is one of the main obstacles to the colonization of virgin areas and to the Annamite's acclimatization in the hinterland. Every colonization project must first have the benefit of careful study of malarial conditions; before the land can be improved, it must almost always be drained and then great care taken for a long time to prevent the breeding of mosquitoes. While the battle against malaria is a heavy burden on both public and private undertakings, it is an economy in the end as far as both labor supply and capital investment are concerned.

In addition to the problem of unhealthful conditions, psychological and social factors also hinder Annamite emigration. According to popular belief, both forested and mountainous regions are very unlucky, a belief in which superstition and actual experience are inextricably intermingled. Buddhism, Confucianism and all the important philosophies and religions which have been introduced from

India and China, have hardly colored the Annamite mind. "The Annamites' real religion," writes Père Cadière, a remarkable judge of those people, "is spirit worship. This religion has no history since it dates from the very origins of the race."²⁴ There are spirits everywhere, but they are especially numerous and evil in the mountains; "they particularly like the passes in the Annam mountain chains and the forest's deadly shadow." All this hilly and remote region beyond the plains is known to the Annamite peasant as the "bad water" country where poisonous forces attack from all directions. Indeed, it is not only the body which is threatened but the soul as well.

It is the very structure and basic meaning of Annamite society which keeps the native at home and stifles the spirit of adventure. In general this is true of all the peoples of the Far East; the age-old influence of Chinese civilization hardly decreased the native's attachment to the village of his birth. Ancestor worship, whether or not it is considered as a subdivision of spirit worship, is very strong in the Annamite heart. Only the faithful observance of its rites can assure the happiness of both the dead and the living, whose deeply felt solidarity is expressed in a multitude of customs; for example, the "huong hoa," a legal institution whereby an additional inheritance is provided, in principle, for the eldest son who is the priest of the cult. At least in certain circumstances, the cult gathers persons making up a family group much wider in scope than the family in France. These rites cannot easily be performed far from the native's home where the written tablets are kept, or far from the soil where the bones of the dead lie buried. To abandon one's birthplace without hope of return seems like a sacrilege which will harm not only the individual and his family but the entire community.

There is not an isolated household in all Annam. Families always cluster together in villages. One village, or several, form the "commune" or community, the most unique institution in Annamite society. This is not only the grouping together of families for the development of certain lands, improved by their collective effort; the Annamite community

²⁴ *Indochine*, published by Sylvain Lévi, Paris, 1931, Vol. I, p. 138.

also has a religious basis. It has a tutelary spirit, worshiped in the "dinh" which is both temple and the home of the community meeting. The individual feels indissolubly bound to this geographical and spiritual unit; he is unhappy when he is away from it and usually dreams only of returning. A wanderer's existence is unbearable to the Annamite; one of the things that has made him despise the mountain peoples is their semi-nomadic life and frequent inability to settle down.

But an attempt to penetrate Annamite psychology is not the only prerequisite for appreciating the problems of emigration. Even if the Tonkin peasant were travel-minded and eager to leave, the problem of colonizing the interior would not be immediately solved. He still must be able to live in the region to which he is sent and there he must find a life which is not too sharply differentiated from that to which he is accustomed, which is above all that of a rice-growing plainsman. Now, the conditions under which rice is grown in the deltas and in the back country are very different. In the hinterland the areas which can be set out as permanent rice plantations are on the whole rather restricted. Only the valley bottoms, in general already inhabited by the mountain peoples, can be used. Certainly it would be an exaggeration to say that there is no available land beyond the deltas; there certainly is, especially in the Mekong valley in Laos, on the red lands of the Moi plateaus and elsewhere. In addition, it would often be possible to build terraced rice fields, cut into the slopes in the manner of the mountain people themselves. These potentialities are limited however and in any case colonizing new land requires thorough, detailed investigation of both soil and water. Such necessary prospecting has been done only partially and incompletely so far. It also requires an expenditure of capital which, though modest, is rarely within the means of the Annamite.

Finally, while the back country is sparsely populated, it is not uninhabited. There is hardly any land which can be called *res nullius* (property without an owner). The presence of mountain peoples is another problem—and a not unimportant one—for any plan of colonizing the interior. Usually these peoples grow their rice not on irrigated fields but on

temporary fields, or *rai*, prepared by burning off the natural forest growth before planting the crop; they then move on to other ground, according to a more or less regular rotation, determined by tradition. It would be a great mistake to assume that the very large areas which do not appear to be cultivated are free land, useless to their inhabitants. These areas which, after two or three harvests, are allowed to go back to forest, brush or grasslands, are not really abandoned; they will be reclaimed and cleared again later and in the meantime they are used for hunting and the gathering of forest crops. The rights of the inhabitants must plainly be safeguarded. It is easy to say that the *rai* is an uncivilized practice, disastrous to the forest as well as uneconomic, but it remains the only means of livelihood for the mountain peoples at the present level of their agricultural techniques. While it is undoubtedly possible and desirable to improve these practices it cannot be done all at once.

Settling Annamites in the southern deltas seems much easier, since it is merely the continuation of a migration which has been going on for many years. Nevertheless there is no doubt that it raises similar difficulties, both legal and human. In the 16th century all the Mekong delta was still occupied by Cambodians who yielded only to force. It is quite true that they were driven out of their country although their natural apathy was of great assistance to Annamite infiltration. Here again, and wherever the two ethnic groups are in close touch with each other, their relations must be regulated by the government.

Even if the recent Annamite expansion into Cochin China, resulting from the great French irrigation projects on marshy and virgin land, seems hardly to touch the Cambodians, settling the newcomers is not always easy; it cannot be done arbitrarily nor can it be left to chance; there must be a definite colonization program.

From Temporary Migration to Permanent Settlement

All the preceding discussions of the difficulties of Annamite immigration hardly seem consistent with the obvious fact that an astonishing number of people, having crossed the Annam

border in the 10th century, reached the mouth of the Mekong in the 18th.

The history of Annamite colonization is still rather obscure. It seems likely, however, that its essential factors were the agricultural colony and the military colony. The former was established on uncultivated land in territory already pacified, while the latter served as a base for the advance of the colonists and their settlement in frontier zones, displacing the peoples whom they had beaten.²⁵ For the most part the members of these colonies seemed to be irregular troops, wanderers, non-enlisted men, and political or common-law convicts who, for the greater profit of the State, there found a chance to start a new family and communal life compatible with the traditions of their race. This seems to be the meaning of the fairly numerous ordinances issued by the Nguyen emperors in the 19th century. There are also points of comparison with the conduct of Chinese expansion in the same areas.

Annamite military colonization in Cochin China was not officially suppressed by French authority until 1867. The nature of this colonization, effective even though carried out by a borderline element of society, was not inconsistent with the generally stay-at-home temperament of the Annamite. It should also be emphasized that it was a contiguous colonization, which gradually pushed the conquered peoples south, and not a transplantation into distant places of groups of colonists who would then have to live far from the rest of their people.

Numerous attempts have been made by the French administration to relieve congestion in the Tonkin and Annam deltas by settling Annamite families either in the back country or in the plains of the lower Mekong valley and in Annam which have not yet been fully colonized.²⁶ One of the first of these was expressed in the order of July 7, 1888, which offered a permanent grant of five hectares in the upper or

²⁵ See C. Briffaut, *La cité annamite*, Paris, p. 53 and ff. Especially based on the works of Durrwell and Schreiner.

²⁶ See the article by S. E. Tranvan Thong, "Mémoire sur la colonisation indigène en Indochine," *Bulletin économique de l'Indochine*, 1938, pp. 1117-1125.

middle region of the Tonkin to any native who applied. After the World War the demobilization of Annamite troops stimulated a new plan of small-scale colonization (the decree of January 13, 1925) which reduced the formalities of securing a grant to a minimum and provided for changing it from a provisional to a permanent grant at the beginning of the fourth year and as soon as cultivation had been thoroughly established. Committees were organized and subsidies granted, but the final result was scanty even in the opinion of the authorities—and bore no relation to the seriousness of Tonkin's population problem. It is generally recognized today that private initiative is doomed to failure in this field even when it has the benefit of government cooperation at the outset. The old Annamite idea of a group of colonists centered around a patron or founder is reviving. This individual might be either French or Indo-Chinese; some valuable results have been achieved by Catholic missionaries in this field. According to a recent order (March 20, 1936) of the Resident Superior of Tonkin, "rural collective grants, called settlement grants, with a maximum limit of 500 hectares, may be granted free to duly authorized citizens, subjects or French protégés, who apply in order to establish new villages."²⁷

In Annam the densely populated areas are much smaller because of the very topography of the country. Overpopulation does exist there, however, not only in the deltas of the Porte d'Annam, where conditions are similar to those in Lower Tonkin, but also in some cantons of central Annam, particularly Quang Tri, Quang Nam, Quang Ngai, Phu Yên and Binh Dinh. However, the population of the plains is not so crammed together as it is in Tonkin: in some places uncultivated areas remain; for example, ground periodically flooded by the tides and lands covered with mangrove thickets, as well as higher ground where irrigation is difficult. Elsewhere, south of Ai Lao Pass the Moi plateaus offer Annamite

²⁷ This does not refer to the colonization of the "sea alluviums" resulting from the gradual extension of the Tonkin delta into the ocean. This colonization has been encouraged by the French administration but only interests inhabitants of the river banks and does not affect more than a few hundred hectares yearly, on the average.

colonization some opportunities which, though they may have been overestimated, certainly exist.

The most important recent experiment in the uncultivated regions of the Annamite deltas has resulted in the creation in north Khanh Hoa of four villages composed of 230 families from the north and particularly from Quang Ngai. The success of *delta colonization* is almost always linked to the construction of irrigation systems, not only of large dams feeding into long canal networks, but more particularly of many systems, each serving small areas and forming a pattern of minor irrigation works or "rice plantation aid." However, these experiments are so costly that the government cannot consider making them a general policy. "They have proved that villages started under direct government initiative must be the exceptions . . . On the other hand, if well located in new regions, they can serve as models for free colonizing projects and in this way acquire major importance."²⁸

It is in Annam that there are the most successful examples of small Annamite colonies outside the delta regions. Back of the Binh Dinh and Phu Yen plains, access to the Moi plateaus is rather easy. At the time of the French occupation there already were two Annamite settlements in the Moi country. The one nearest the delta was An Khê where the Annam court had sent political exiles at the end of the 18th century. In the wide cradle of the Song Darang valley, on sandy soil about 400 meters high, Annamites lived, sometimes singly, sometimes in little hamlets, in the traditional Binh Dinh house with its characteristic gables often surrounded by cactus hedges. They plant small irrigated rice fields and also raise a great deal of manioc; they have adopted some of the Moi methods of cultivation and use the *rai* system of forest burning to clear the slopes for cultivation.

French Catholic missionaries established the first Annamite settlement near Kontum in 1851; the altitude there is between 550 and 600 meters and the colony is approximately 150 kilometers from the Annam coast in the upper basin of the

²⁸ Address by Resident Superior Graffeuil at the opening session of the annual meeting of the French Council of Economic and Financial Interests in Annam, September 26, 1938.

Sesane River (or Dak Bla), a Mekong tributary. The official administration of the Protectorate has been represented there only since 1905 and it is only since 1926 that the government has systematically encouraged Annamite colonization at Kontum as well as at An Khê. From the beginning this has been facilitated by roads. Emigrants from the deltas never venture far from the carriage roads, which allow them to maintain contact with their families and countrymen and also to carry on the small trade which often provides part of their livelihood. In Kontum, which has become almost entirely Annamite, a program (undertaken at the instance of the Pasteur Institute) of clearing underbrush, draining by means of cement gutters and pouring gasoline over stagnant water, has reduced the ravages of malaria which had exhibited very serious forms in the region (bilious, hemoglobinuric fevers).²⁹ Pieces of land are given free to new colonists, the size of the grant varying according to the family's circumstances. To avoid crowding, the colonists are prohibited from building on more than one quarter of the area granted. As a rule the ground is not suited to rice-growing but to dry crops, like manioc, maize, coffee and various vegetables and fruit trees. Today every stage in the development of this small Annamite colony may be seen in Kontum: huts of bamboo and straw, similar to those of the delta, first house the newcomer on the cleared ground; later a tile roof is added; and finally neat, clean houses of mud or rough bricks, are set in the midst of gardens, between plots of corn and manioc and plantations of coffee trees (*coffee arabica*). Many of these small Annamite estates at Kontum already bespeak a certain degree of prosperity. There are now about 15,000 Annamites in Kontum province, near the chief town and in An Khê, including those who are employed on European plantations. Almost all come from the deltas of Phu Yen and Dinh Binh bordering the Kontum plateau.

Other similar experiments, neither so old nor so well advanced, have been made in the neighborhood of Pleiku and Cheo Reo and in Ban Me Thuot, capital town of the Rhadé

²⁹ Dr. H. Morin, *op. cit.*, p. 161.

province of Darlac, which for a long time was completely closed to Annamite colonization.

Finally Upper Donnai, the most southern Moi province, today has 15,000 Annamites out of a total population of 50,000. These are not only the temporary laborers employed on European tea and coffee plantations but families who settled on the Lang Biang plateau while the resort at Dalat was being developed. Here drainage has almost completely wiped out the rather mild local malaria. Some of the Annamites raise vegetables for the Dalat and Saigon markets. But vegetable export to Cochin China is mostly the job of the Annamite market gardeners who live near Dran, below Dalat. Annamite colonists are also found around Djiring where they are chiefly engaged in coffee growing. Both the Dran and Djiring plateaus, however, have very unhealthy climates, even though they are about 1,000 meters high.

It is evident that there are a number of interesting nuclei of internal colonization in Annam, but it is regional colonization which takes place within the borders of Annam and even within a single or two adjoining provinces. Moving, in such a case, does not involve great distances. Annam will have to find its demographic equilibrium within its own frontiers. Although Annam too, has overpopulation problems, it is better able to solve the problem than Tonkin because of its topography, its division into isolated regions.

For many years a field for Tonkinese colonization, today Annam no longer offers a wide enough outlet for this purpose. Anxious to find the resources necessary for its surplus population, which increases by about 100,000 a year, and despairing of finding it quickly enough through emigration into its own back country, Tonkin looks beyond to the south.

The European plantations in Cochin China and Cambodia offer some opportunities. Since 1926 these have spread into areas which were practically uninhabited, and consequently there is a crying need for foreign labor. The interests of south and north, one surcharged with people and the other underpopulated, seemed to dovetail on the rubber plantations; and an increased migration from the Tonkinese rice farms

to the redlands of the south was envisaged to the greater good of all Indo-China.

In fact, the agriculture in the red lands helps to ease conditions in the northern plains by the high salaries paid the coolies and this was a remedy, if only a partial one, for the north's overpopulation. This induced migration, however, was only temporary and not the permanent exodus so badly needed in Tonkin.

The labor recruiting organizations for the southern plantations should not be considered as a program of internal colonization. Despite efforts of government and plantation owner alike to induce immigrants to remain, they are still very unsettled. As a rule, single men rather than families, go to the southern plantations,³⁰ and the number of women emigrants is very much smaller than the number of men. While it is true that some of the coolies take Cochin Chinese wives, these unions are generally short-lived and seldom entail permanent settlement in the south. At the conclusion of their contracts most of them demand repatriation.

In the red lands the Annamites do not find conditions favoring their traditional rice-growing existence. In spite of present or future improvements their settlement seems doomed to remain rather precarious and dependent at all times on the plantations' requirements, the developments in hevea culture and the latex trade.

As a result, it is the uninhabited lands of western Cochin China which seem to present the largest and surest outlet to the overpopulated deltas of the north. The parcelling out to Tonkinese families of the land in the south made available by irrigation was not thought of when the work was first completed. Tonkin's overpopulation was not as serious then as now. Instead, the most immediate needs were given attention and these seemed to be the rapid increase of the cultivated acreage and of rice production. Such speed was incompatible with the establishment and execution of a program of colonization for immigrants from distant lands. It should be added that the administration was considerably rushed by pressures from private interests and speculators. The drained

³⁰ See below, p. 217.

lands were quickly occupied by free planters from neighboring regions, particularly by the tenant farmers, or *ta dien*, of the big Annamite and French estates. The administration even favored speculative land purchase, for capital was necessary to establish the rice plantation as a growing concern and a regime of large-scale ownership seemed unavoidable.³¹

It was not until 1907 that the first official attempt at small-scale colonization was made by transplanting Tonkinese peasants to rice plantations in the south. Three hundred and twenty-eight persons forming 84 family groups were recruited from the overpopulated Tonkinese province of Thai Binh and settled in the province of Can Tho in Cochin China. The recruiting had been very badly done, the experiment failed and most of the emigrants had to be sent home.

Other attempts were made after the first World War; village colonies were set up in Rach Gia and Ha Tien provinces; in the latter case involving the migration of about 3,000 Tonkinese who had previously been taken to Phu Quoc Island by a private company which had failed.

In 1936 a Tonkinese Colonization Commission asserted with justice that while attempts had always miscarried in Cochin China, it was because the real Tonkinese peasant had not been appealed to. Colonists had usually been recruited from "among city vagrants, rural undesirables and survivors of unsuccessful experiments." The Commission recommended two types of immigration: large-scale mass colonization and very small model colonies. For the first a piece of land, still largely uninhabited, was chosen in Rach Gia province. Here the main irrigation works had been completed but the small canals were to be completed by the individual colonists. The establishment of two villages of 500 families each was planned.

This program, which has not yet been carried out, was very modest in scope when compared with some. It had been suggested, for instance, that 50,000 Tonkinese families be

³¹ A large Cochin Chinese landowner recently told the author that, at the beginning of the century, he had acquired for 80 piastres an estate which was said to comprise 250 hectares but which actually measured almost 1,000. Today, sales are settled by mutual consent or, if there are several prospective buyers, go to the highest bidder.

settled in the Transbassac within a few years. Even today we are still far from such a goal.

What are the obstacles to Tonkinese immigration into the southern plains? In the first place, although it is delta land, western Cochin China is very different from Lower Tonkin. It is true that the immigrant settles on rice lands here, but they are rice lands which cannot be cultivated like those at home; the absence of dikes, the constant struggle against salt water and even the size of the estates, all are new problems. In addition, the northern Annamite does not stand on an equal footing with his new neighbors; he must learn a dialect quite removed from his own and accustom himself to strange habits of mind, less bound by tradition than his.

Furthermore the Cochin Chinese do not look with approval on mass migrations from Tonkin. They are aware, of course, that there still is unoccupied land in the country, but they feel that it will be taken up within a half century if Cochin China's population continues increasing at the present rate. The big landholder fears the establishment of village communities in Transbassac which might be too individualistic in spirit; they know the Tonkinese as a good worker, but also as a headstrong and often spiteful person.

It was to meet these objections that the second type of colony was planned, the "select" or "model" colony. The big landowners of Cochin China were to be asked to establish such colonies of Tonkinese laborers on their own property. In time this would become the normal method of settling migrants permanently, and mass immigration would not be used except to bring in initial trial groups. Some Tonkinese are already employed on a few large estates in Cochin China, but they remain the exceptions.

A successful Annamite immigration from the northern plains to the back country and the Mekong delta seems indispensable to the steady development of Indo-China. But the problem is not simple and involves more than merely moving people from one place to another. It was hoped that the development of adequate means of communication would produce self-sustaining streams of voluntary emigration.

Already Annamite houses can be seen at intervals along the new roads. However, the flow of this spontaneous immigration is still very scanty and inadequate. The substantial and sustained cooperation of the administration is essential to its progress.³² Large funds should be set aside each year for this work and trained specialists engaged to plan and direct it in the light of past experience. There should be thorough study of the steps taken in neighboring countries where similar problems have arisen. Holland, for instance, has had considerable success in transplanting Javanese families to certain parts of Sumatra, to the southern part of Lampong and around the large plantations of Deli-Medan. The preparation of the soil for possible crops, and provisions for drainage and drinking water would precede the immigrants' arrival. The latter should be carefully selected and transplanted as families, preferably in groups of families from one community. The ties between the new settlement and the original village would not be suddenly broken off. Loans of equipment, cattle, paddy or money would be made to tide the immigrant over till he was assured of a financial return from the land. Some specialists would like to extend to all agricultural colonies the institution of "patron" or "founder-benefactor," who would enjoy material and spiritual advantages. A great deal could also be hoped for from cooperative organizations.³³

Other Labor Problems

Economic evolution depends on the output, as well as the distribution, of labor. This output varies according to the location and race of the worker. It is rather difficult to esti-

³² See M. P. Bernard, *Nouveaux aspects du problème économique indochinois*, Paris, 1937, pp. 69 ff.; and S. E. Tranvan Thong, *op. cit.*, p. 1124. A statement of official projects will be found in the compilation of speeches and reports published under the title, "Conseil Supérieur de la Colonisation," in *Bulletin Économique de l'Indochine*, 1938, pp. 715-756.

³³ As far as Annamite immigration to overseas territories is concerned, it has gone only to the French Pacific colonies, to New Caledonia and the New Hebrides in particular; 16,537 emigrants from Tonkin and Annam went to these islands between 1920 and 1930, but only 4,541 remained on December 31, 1937.

mate Indo-China's available labor supply and there are contradictory opinions about it.³⁴

It has been said in the past that the population of the Tonkin delta was not too numerous in view of the country's future development and that therefore it was unwise to encourage increased emigration. This opinion was held by certain Tonkinese employers—both European and native, industrial and agricultural—when emigration to the southern plantations and the French Pacific colonies was increasing. Actually at the time of the heaviest agricultural demands, like the October crops which require prompt harvesting, there seems to be no excess population in the Tonkin delta.³⁵ During this period, industry's labor supply is cut down because many workers return to the fields. On the other hand, the answer to this is that native techniques had unconsciously adapted themselves to the very abundance of manpower and the number of mouths to be fed, with the result of an unprecedented waste of manpower. Improved processes, tools and better communications would certainly bring about the progressive liberation of considerable numbers of workers from their traditional tasks.

No longer does anyone seriously contest the necessity of Tonkinese emigration and the urgency of accelerating it. Among the many effects which overpopulation in the Tonkin and North Annam plains might have on economic development, the bad certainly outweigh the good. It is true that such a reservoir of manpower could be very useful to modern industry; but the observer is especially struck by the burden which overpopulation imposes on the improvement of native agriculture, which must remain the region's basic activity.

Everywhere the Annamites work as helpers for the Europeans in jobs which the latter plan and direct. The other inhabitants of Indo-China could also certainly be trained to work in new business. Some Mois are employed on European plantations in Cochin China and especially in South Annam, as well as in the Bong Mieu gold mines in Quang Nam. Here

³⁴ Regarding labor problems, see Goudal, *Problèmes du travail en Indochine*, International Labor Office, Geneva, 1937.

³⁵ P. Courou, *op. cit.*, p. 572.

and there some Mans and Thai work for Europeans in northern Indo-China. A few Laotians are employed in the Cammon tin mines, and gangs of coolies recruited on the spot have worked on the road systems throughout the back country. Like the Laotians and in spite of their natural indolence, the Cambodians can work energetically and are more susceptible to the inducement of profit than is often thought; administrators who know them say that their usefulness is only a question of time, education and training and that both races will then be valuable factors in the development of their country. Under the stimulus of increasing need such progress seems probable and will grow as practical training adapted to the capabilities of the people and local needs is perfected. But the process will be slow. Today the natives of the back country do not hire themselves out except for the few brief periods of the year when field work is slack, and then only to obtain money to meet their taxes. Usually it is hard to keep the Moi for even a few days either on plantations or in a coal yard; some fine evening he simply returns to his native village without giving notice and for reasons which seem trifling to the Westerner. Finally, these minority peoples are usually scattered and semi-nomadic; because of their small numbers as well as their instability, they are not adapted to colonization work.

The Annamite is universally regarded as the most adaptable, obedient, skilful and energetic of the peoples of Indo-China. He has a good memory and his imitative and assimilative faculties are remarkable. This is particularly true of the Annamite in Tonkin, where the sharper climatic changes including a real winter renew his energy and where, in particular, the pressures of overpopulation demand a harsher, steadier struggle for survival. As one goes farther south the peoples' energy slackens just as their physical strength diminishes. The population of the northern deltas is Indo-China's best reservoir of labor, as regards both numbers and ability.

The Annamite's superiority, however, is entirely relative. His output is inferior to that of the European worker at home and to that of the Chinese immigrant in Indo-China. Em-

employers often complain of carelessness and lack of conscientiousness on the part of the Annamite laborer; these faults frequently hinder the use of improved, carefully adjusted machinery. Besides, the Annamite is often weak physically; "the delicate constitution of the Annamite worker," says S. E. Hoang Trong Phu, *tong đốc* of Ha Dong, "makes long working periods possible only under conditions suited to his physical strength. He must have frequent recesses during working hours. . . . His useful output is hardly one third that of a European laborer." A particularly clear and suggestive contrast of this type is found in the mining industry. In the Tonkin coal mines the average daily and basic yield per miner per day between 1930 and 1936 never exceeded 207 kilograms, while it was between 802 and 858 kilograms in Japan in 1932-33 and 871 kilograms in France in 1936.

According to a report by the Tonkin Labor Inspector on the textile industries of Nam Dinh and Haiphong, the output of Tonkinese labor is only 73 per cent that of French workers in spinning mills, and 55 per cent in weaving. "The native does his work as though it were a game, with unquestioned skill but carelessly. For this reason five or six workers are needed where two or three at most should suffice. The Annamite laborer will not adapt himself to work that is too unremitting or carried on under pressure; such work would be refused and in any event it would exceed the Annamite's mental and physical capacities."³⁰

Furthermore, particularly at the beginning of the French occupation, it was not easy to find skilled workers and good overseers. In Annam manual labor traditionally has been little esteemed. In Cochin China itself well-to-do families considered it a disgrace to apprentice their children; they preferred the study of letters, as one family told a Camau schoolmaster. As for the poorer families, they did not usually have the means to keep their children in school once the bare rudiments had been acquired. There are, nevertheless, some provinces in Cochin China where it is impossible to find a competent carpenter.

At first, most businesses undertook to train their own skilled

³⁰ Goudal, *op. cit.*, p. 330.

workers and administrative staff. But now they are receiving more and more cooperation from the growing number of technical training schools at every educational level. A convenient practice and one which is constantly spreading, especially in Cochin China, is to parallel the primary schools with technical courses which provide training for various crafts according to local demands—teaching woodwork here, iron work there, weaving, basket making, lace making and so forth.

It is only in comparison with other Indo-Chinese races that the Annamite seems to be a steady worker. Actually, the Annamite, as much as anyone else, dislikes leaving his native village for long. He misses the planting and harvesting of rice fields, the group feast days, the family celebrations, particularly the *têt* ceremonies at the beginning of the Annamite new year which are such an important ritual in his life and in his belief in ancestor worship. Besides this general holiday, there are many other causes for work stoppage. In many organizations, for example, the work is carried on not by an individual who works steadily, but by several members of the same group or family, who take turns replacing each other—this system is frequent among European employers who do not know each worker individually and use the services of an intermediary, or *tacheron*, who is the head of the group. "The mines and coal yards of upper Tonkin and Laos have at their disposal only a floating labor supply which is basically unstable; mines and coal yards in other parts of Tonkin have been unable to settle more than a small minority of the labor force in permanent homes, in spite of considerable effort over a period of fifty years."³⁷

Tonkin companies, however, benefit from the proximity of an overpopulated delta. Recruiting difficulties were very much more pronounced in the rather sparsely populated south. When the rubber plantations in Cochin China and Cambodia began expanding onto the fertile but scantily

³⁷ *Bulletin du Comité de l'Indochine*, Meeting of October 2, 1936, p. 41. In one Tonkin mining center, of 24,825 workers employed in 1936 only 422 had worked 300 days or more; 18,645 had worked less than 150 days. P. Guillaumat, "L'industrie minérale de l'Indochine," in *Bulletin économique de l'Indochine*, 1938, p. 1298.

populated red lands, the planters naturally looked to the Annamites of the northern plains. Large-scale recruiting hardly began until after the World War, in 1919, when many Tonkinese coolies came to Saigon by sea. Beginning in 1924 the demand for labor grew rapidly as the plantation area expanded. This was also the time when the French colonies of New Hebrides and New Caledonia were clamoring for Annamite labor. The intensity of recruiting and of the problems resulting from the emigration of these large numbers of coolies led to increasingly rigid official control.

The Inspection Générale du Travail was created under the Government General by decree on July 19, 1927, and regulations were established: precise wording was prescribed for the clauses in contracts between coolies and employers, and was better and better enforced. The authorization to recruit—often carried out by private agencies—is valid only in the provinces or areas indicated. The administration supervises the recruiting as well as the embarkation of the immigrants, following a medical examination. The conditions of work, as regards salary and length of contract, are settled. The contract fixes the free daily rations: 700 grams of dry rice per man, woman or child between the ages of fourteen and eighteen. Housing must be "sound, convenient and hygienic." There is a compulsory five per cent salary deduction which is held in a savings fund in order to protect the native against his own improvidence, gambling and tendency to acquire debts which can be repaid only with difficulty. All or at least half of this fund must be reserved for payment to the laborer on the day he leaves for home. The duration of the contract is three years, with the option of renewal at the end of that period; there are stated penalties for the infraction of the contract by the native, particularly for unjustifiable absence or desertion.

This contract system affects very few laborers except those on the rubber plantations of the red lands of Cochin China and Cambodia for it is only these companies which have had to call for large numbers of workers from distant regions.³⁸ For the other European organizations with more modest requirements—like those in central and south Annam and in

³⁸ See below, p. 213.

Laos—those located near an abundant labor supply as in Tonkin and Annam, or even the plantations on the gray lands of Cochin China, the hiring of workers who come voluntarily from neighboring plains either singly or in groups is quite adequate. In these cases the contract is usually verbal and its duration often short—a few days or weeks only. This type of paid labor is called “free” because the length of the engagement is indefinite and, up to a very few years ago, it had not been subjected to full and rigid official regulation, like contract labor. The regulation of free labor, however, became necessary and was the object of a decree on December 30, 1936 (the enforcement of which has resulted in numerous arrests) which is known as the Indo-China *Codes du Travail* or Labor Code. The main new provisions concern the limitation of hours of work (eight hours in most of the large and medium-sized companies), the prohibition of night work for women and children, one day off a week and annual vacations with pay, the suppression of fines, and the obligation of both employee and employer to give notice before terminating employment.

Regardless of any adjustment entailed by this application, these Codes formalized the existence of a new social class among the Annamites, the wage earner.³⁹

Social Changes

Economic development has brought about certain modifications in the structure of native society which, although difficult to calculate and not always clearly and accurately reflected in statistics, are nevertheless far-reaching in their effect. These

³⁹ As late as 1937 the registers of the Labor Inspection of Indo-China listed only 72,000 workers and employees on the average (of whom approximately 50,000 were in mines and quarries); but this number was soon to expand to include about 150,000 salaried workers. While it is a simple matter to keep track of the number of workers in large companies, it is difficult in the small ones, particularly those owned by Indo-Chinese and Chinese.

Labor regulations could not suddenly develop, in the Indo-Chinese, an interest in his work and a desire to labor diligently. The output per hour has not yet increased, even though the cost of production has risen. Regarding work in the mines, see P. Guillaumat, *op. cit.*, pp. 1298 and 1317.

are rightly considered among the most substantial and lasting results of colonization. Moreover they count as one of the factors which will determine the future development of the country and which should be studied before any new plans are drafted. It is among the Annamites that these changes have been most rapid and most obvious, and it is here that the evolution of these social classes—the wage earners and new élite developed under Western influence—can best be seen.

Statistics include under the heading "wage earner" those who work in enterprises created by colonization, especially the plantations and varied industries, whose management is usually European, sometimes Chinese and, still only in rare instances, Indo-Chinese. It is to these enterprises that the government regulations apply. Each company employs a number of wage earners and, in some cases, many thousands, as for example in the textile industries and mines of Tonkin and Laos and some of the rubber plantations in Cochin China and Cambodia. Such large groups of laborers were unknown in ancient Annam where at the time of the French occupation the family unit served as the labor supply. In industrial workshops and on farms where the family unit was too small, very few supplementary workers were employed and "their position was rather that of personal servants"; the farm hand, "in addition to a very meager wage, received lodging and food; in a way he was treated as part of the family of his employer on whom he was closely dependent for the debts he contracted."⁴⁰ In modern companies wages are still quite often paid, partially at least, in kind and with food. But the wage earner no longer has any direct contact with his employer, who is almost always a foreigner, and of a different race. He is usually a member of a gang led by an overseer, or a *cai*, in which he feels as if he were only a number, or an interchangeable part, at the service of an unseen, anonymous power. Separated from his traditional surroundings, he feels that he is only a cog in an incomprehensible machine—an experience totally foreign to his

⁴⁰ P. Chassaing, "La naissance du prolétariat en Indochine," *Revue du Pacifique*, April 15, 1933, p. 208.

ordinary concept of life. Cut off from the framework of his community and family, he woefully endures his spiritual loneliness.

True, this describes the extreme rather than the general rule. It only applies to those persons who are employed away from their native communities, especially the Annamites who work in the south; and there, as we have seen, the contracts on the red land plantations last for three years only, after which repatriation is common. In addition, most of the laborers keep in constant touch with their villages and return home often.

Furthermore, the number of wage earners recorded in the government's statistics is very small in proportion to the population. In 1929 there were 221,000.⁴¹ There has been no census since then, but, as a result of the depression which seriously affected the colony, the number probably decreased to an estimated maximum of 150,000 laborers employed in French companies in 1936. This is an insignificant figure—less than one per cent of Indo-China's population.

However, the increase in the number of wage earners since the beginning of the century and especially after 1920—when the rubber plantations in the south were increasing and the northern mining industry was growing rapidly—should be emphasized; in 1922 there were 3,022 hired farm hands on the plantations in the south, and 22,352 in 1928, excluding women and children; in the same period the number of mine workers increased from 20,774 to 54,955.

Moreover these figures include only those laborers at work on the day the census was taken. Because of the very fact that the labor supply is unstable, many more people have been affected by the social changes resulting from colonization. "This explains the considerable intermingling of population," says M. Goudal rightly, "which resulted from the recruitment of Tonkinese coolies for plantations in the south; in order to maintain a labor force which has never at any time exceeded 22,000, nearly 75,000 individuals had to be recruited between 1925 and 1930."⁴² Some mining com-

⁴¹ Goudal, *op. cit.*, pp. 279 and 300.

⁴² *Ibid.*, p. 280.

panies have even had to recruit new workers each year because most of the coolies who left during the *têt* holiday did not return. This turnover surely delayed the formation of a distinct, self-conscious working class and it postponed the establishment of a strict line of demarcation between the wage earner and the peasant. On the other hand it extended the effects of the new way of life to a rather large portion of the population.

The rural population has felt the consequences of European intervention in still another way. In large part it had been made up of small landholders, each cultivating his own land. Undoubtedly there were inequalities of landed wealth, but these were counterbalanced by the institution of joint communal responsibility. Assistance to the poor and sick was organized within the framework of the Annamite community; besides the *huong hoa*, property set apart for the family's religious observances, other fields or *ngay dien*, were reserved by religious foundations for the needs of the aged, widows, orphans, and so forth. Despite the arbitrary division of land made by the village head men, the people destitute of rice fields turned for support to the communal lands whose cultivation was periodically shared.

Population increases and the weakening structure of communal life have often ruined this valuable custom of mutual aid. In the northern deltas which are almost entirely under cultivation, the surplus of births has steadily decreased the average size of family holdings ever since the French occupation. Here is an oft-cited and typical example: the Forestry Service, wishing to lease two and a half hectares of high rice lands to use as plant nurseries, had to deal with 76 owners who shared this land and to sign 76 rental contracts.⁴³ On the other hand, this decrease in the size of landholdings has not affected all owners evenly; despite the government's efforts, contrasts in landed wealth are increasing. The new trade potentialities opened up by improved transportation and the abundance of credit have encouraged large estates; the revenue from these estates made it possible for ambitious and clever growers to supply demands that were practically un-

⁴³ Y. Henry, *Économie agricole de l'Indochine*, Hanoi, 1932, p. 111.

known in the old system of closed economy, but which had developed with the economic evolution brought about through the activities and under the leadership of the Europeans. In Tonkin large estates have come into existence since the French occupation and as a result many small owners have become new tenant farmers. According to the admittedly very incomplete results of a general study,⁴⁴ it appears that in the Tonkin delta 594,000 owners, or 61.6 per cent, have less than one *mau* (.36 hectares) of land and that 288,000, or 30 per cent, had from one to five *mau*. It was impossible to determine the proportion of those who owned no land at all or of those very small landholders who had to rent part of the land which they cultivated. In the four southern districts of Hai Duong, about half of those registered on the tax rolls own not one single square meter of rice land. The average number of heads of families who lack land is certainly much lower for the deltas as a whole; but after a careful study made in several villages in Bac Ninh province, M. Gourou estimated at 63 per cent the number of taxpayers without land or with less than *5sao* (.18 hectares).⁴⁵

Large estates are usually formed through the purchase of land which has been forfeited or on which loans at exorbitant interest rates have been made. The cultivation of these lands remains in the hands of small cultivators, farmers or sharecroppers, whose wretchedness is increased by their debts. It should be added that speculation in land, inadvertently encouraged by the French administration, often thanks to the complicity of the mandarins and village head men, on occasion has also involved communal lands. Thus the existence of small owners and tenant farmers is rendered even more precarious; in Tonkin communal lands now represent only about one fifth of the cultivated area.

In Cochin China the large estate occupies an even more important position than in the northern deltas.⁴⁶ The eco-

⁴⁴ Y. Henry, *op. cit.*, p. 108.

⁴⁵ P. Gourou, *op. cit.*, pp. 360 ff.

⁴⁶ An interesting comparison of the conditions of ownership and tenure in the different countries of Indo-China will be found in a report by M. Réteaud (Conseil Supérieur de la Colonisation, *Bulletin économique de l'Indochine*, 1938, pp. 746-753).

conomic evolution set in motion by the French occupation has operated here for a longer time, but the main factor has been the rapid extension of rice-growing to vast regions which had previously been waste lands and had been made immediately cultivable by canal construction. Western techniques naturally produced quicker and more impressive results from virgin soil than on lands which had already been cultivated by the Indo-Chinese. This explains why in the "old provinces" of eastern and central Cochin China, the estates are still relatively small in size, although they are larger than those in the northern deltas. As a rule the owner himself cultivates at least some of his fields and supervises the work on the remainder—which is entrusted to tenant farmers who are easily recruited in the vicinity, as in Tonkin, from among those having no property at all or very little.

In the western provinces, on the other hand, new lands were not brought into production by small-scale native colonists. To be sure, this is regrettable, but the French administration has some justifications; the construction of canals was very expensive and it seemed logical to sell the land cheaply to the buyer best able to develop it quickly. Only rich natives and those able to borrow applied. This was the origin of large estates held by a single proprietor. While the percentage of landowners with from one to five hectares is 80.2 per cent in the central province of My Tho and 71.7 per cent in Cochin China as a whole, it is much lower in the Transbassac provinces: 49.9 per cent in Rach Gia and 38.3 per cent in Bac Lieu—in these provinces it is not unusual for one owner to have 500 or even 1,000 hectares.⁴⁷ Cultivation by the direct family method is no longer possible; on this land, recently almost uninhabited, it is done by tenant farmers, or *ta dien*, who pay a specified amount of paddy as rent each year. Often unstable and restless, these farmers, lacking funds, borrow both money and rice from the landlord. The landowners depend as much, if not more, on the interest from these loans, as on

⁴⁷ In Bac Lieu province, according to a recent report, farms up to 10 hectares in area total 87,642 hectares, those from 10 to 50, 98,547 hectares and those over 50, 144,864 hectares. See also the tables in Y. Henry, *op. cit.*, pp. 152 ff.

the steady improvement of their rice fields; usually they do not live on their land but in the main town of the province and sometimes even outside the province; often their contacts with the *ta dien* are made only through their managers, or *cai*; landownership here is mainly speculative.⁴⁸

To sum up, unwittingly and contrary to its own interest, French colonization has led to the increase of a so-called "proletariat" class in Indo-China (although it should be pointed out that it is impossible to compare this proletariat with the class designated by the same term in the West). In this essentially rural society, it might be defined as including all those people who either own no land or have too little for their livelihood. And to this criterion of insufficient real property should be added that of uprootedness or "detrribalization," as it might be termed if the Annamites had not long since outgrown the tribe.

The borderline between wage earners in European undertakings and the rural proletariat is shifting and hard to trace: members of the first of these categories are generally recruited from the second, and because of their own instability, continue to belong to it. It should also be pointed out that varying conditions exist among the farmers who are not landholders; for example, the Tonkin farmer who has lived for generations in the same village does not resemble the *ta dien* of western Cochin China, recently come by sampan to a land his ancestors never tilled. The difference between the Tonkinese laborer who has contracted for three years' work on the southern plantations and the one who works for a few weeks at a time in the coal mines a short distance from his native community has already been mentioned. Thus, there is a whole scale of different situations among the non-landowners—from the very numerous sedentary tenants, and the still rather rare migrant wage earners—to the short-term emigrants, agricultural day laborers and workers in industry and on plantations.⁴⁹

⁴⁸ P. de Feysal, *L'endettement agraire en Cochinchine*, Hanoi, 1934, pp. 18 ff.

⁴⁹ The irregular wage earners should also include the coolies employed on the big public works projects. In 1926, for example, the colony

The fact remains that Annamite society today includes a considerable floating population, which is constantly increasing and tends to stray farther and farther from the traditional bonds, if not of the tribe, at least of the community. This evolution is slow; as has been mentioned, the Annamite's distaste for leaving his village is a big factor in the difficulties encountered in inducing this permanent emigration or colonization within the country. Nevertheless, it is going on and is a not unimportant element in the country's economic and political life.

No less remarkable is the formation, in the very bosom of this old society, of a class known as the Annamite bourgeoisie which should, perhaps, be called the "new élite" for fear of misleading comparisons. Like the proletariat, it was a result of contact with Western civilization and the consequent weakening of traditional values. It rests on the acquisition of wealth, but even more on education and new customs; it is the proportion of these two factors which again introduces a whole new series of nuances.

Annamite wealth is very rarely founded on large trading interests or big industry, which are primarily in European and Chinese hands. Those who own the big stores, silk mills, embroidery shops, profitable oil-works and soap works, ship outfitters in the ports, etc., are exceptions, as are those who have amassed fortunes in new plantations such as rubber. It is the development of the rice plantation and the moneylending system that goes with it, which are almost always the source of Annamite prosperity. The rise of the Annamite bourgeoisie, then, depends in part on an increase in the ranks of the proletariat, since rice-growing is carried on by traditional methods, without the use of machinery which would reduce the labor force. It is therefore understandable that this class should be particularly strong in Cochin China where European activity has greatly extended the cultivable area. It is here that owners of several hundreds or even thousands of hectares, under tenant cultivation, are most numerous. The profits they have been able to make and the credits avail-

expended 20 million piastres on new public works, employing about 50,000 individuals daily.

able to them have allowed them to engage occasionally in other activities. During the period of prosperity which the Colony enjoyed between 1924 and 1928, some of them set up industries (oil-works, rice husking plants, saw mills, brick and lime kilns), some built theatres and tenement houses for rental in the cities, and others organized public transportation systems. But many of these ventures have failed since the depression and it is the continued acquisition of rice fields which remains the rich man's most coveted prize.

The acquisition of wealth entails decided changes in the traditional Indo-Chinese way of life. The bourgeois usually lives in a house built and furnished in Western style, or a combination of East and West. He adopts European clothes and drives an automobile. He sends his sons and sometimes his daughters to study in France.

This brings up another characteristic of the new élite; their intellectual and moral transformation—which the French did not wish to see evolve so rapidly but which naturally follows in the wake of all colonization. Old social hierarchies were overturned. The long-nailed mandarin, product of the triennial competitions, is a figure of the past. The traditional system of education, based on the study of the Chinese classics, has been supplanted by modern education which includes more and more of the methods and sciences of the West. Very often the Annamites have been more eager in demanding this development than the French have been in making it. The desire for higher education is as deep-rooted as ever in the Annamite even though the system has been altered. Only a small minority, however, either members of the richest Annamite families or holders of government scholarships, can satisfy this desire in France. A larger and more effective educational system has been formed in Indo-China itself, which trains the intellectual élite side by side with the moneyed bourgeoisie. The two classes overlap considerably, but already a number of young men from merely well-to-do families or even those of rather modest means have also joined the group. Many have entered the administrative hierarchy at various levels; already there are Annamite graduates of the Polytechnic Institute and Annamite teaching fellows, doctors

of law, science and letters, and engineers; each year the different schools of the University of Hanoi turn out young civil servants who soon make changes in the mandarin's professional attitudes, as well as teachers, magistrates, doctors of medicine, etc. A recent ruling admits natives, who go through the military schools of the mother country, to all ranks in the Indo-Chinese army.

Receiving a diploma is a big event for the young Indo-Chinese. The fears still persist which were aroused at the very first by the prospect of unemployed intellectuals doomed to all the rancor resulting from unfulfilled hopes. Just as much as rural overpopulation, the overproduction of college graduates is a subject of constant anxiety and daily articles in the local press. Nor is this an exclusively Indo-Chinese problem. There is considerable agreement among Europeans that theoretical study should be carefully limited and technical training vigorously encouraged. Determined efforts have been made already in this direction. The real problem is to find remunerative employment for the young men as they leave technical school, elsewhere than in government or the liberal professions. Commerce and industry do not tempt the Annamite intellectual, even those of the well-to-do class; they have little aptitude as a rule in this field, and cannot compete with European and Chinese who by long experience, financial backing and organization are better equipped for it.

It should be said, however, that the French have not always looked with favor on the possibility of Annamite competition in these fields. At present, however, much informed opinion feels that greater and greater native participation, according to their competence and financial means, in all of the colony's enterprises and in every phase of its economic life, is indispensable to the successful progress of the colonial empire. The problem is closely related to industrialization, the introduction of new crops and trade, all of which will be taken up in the second part of this book.

CHAPTER II

COMMUNICATIONS

Colonization has many different aspects. The word itself evokes numerous images, depending on climate; one area may be favorable to the permanent settlement and growth of European colonists; in other regions, however, white men are birds of passage who replace one another in supervising, educating and developing the native populations.

But whether it be a permanent colony or only a handful of Europeans overseeing new ventures, adequate and rapid means of access and communication are essential to maintain first the security of the colony, and second, governmental control as well as to further internal relations through the interchange of peoples, commodities, thoughts and ideas. Moreover, both types of colony need convenient communications with both the mother country and the rest of the world. To shorten distance and save time—these are the laws imposed by modern civilization (conqueror's civilization) on peoples who have been oblivious of them.

RAILWAYS

The great expansion of European colonization in the last quarter of the 19th century coincided with the supremacy of railways. It was quite natural that rail transportation should be considered indispensable to the development of Indo-China. It was even more necessary there than in other countries, because of the terrain itself—its rough and broken topography, the irregularity of its two great deltas, and the opposing directions in which fall its two great slopes, to the Mekong and to the South China Sea. Moreover, there was a wholly understandable ambition on the part of the colony to use rail transportation to attract as much as possible of the trade of South China.

The Rail Network

Until the end of the 19th century when the Union of Indo-China was finally formed, only the fragments of a railway system had actually been built. Cochin China, occupied since 1860, had begun a program of its own. Between 1881 and 1885 a line was built from Saigon to My Tho, through the most heavily populated part of the delta, the beginning, it was hoped, of a line which would be continued later toward Vinh Long, Soc Trang and Phnom Penh.

A little later, at the other end of the country, the conquest of Tonkin entailed the construction of a 60 centimeter gauge railway between Phu Lang Thuong and Lang-son, where it connects with water routes to Haiphong; it was needed to supply the Lang-son and Cao Bang garrisons, and to evacuate the sick and wounded. Begun in 1890, the work progressed very slowly; workyards were raided by marauders who carried off the white foremen; the labor supply was very scarce; the estimated expense was greatly exceeded, and additional funds were meager and only irregularly available. The short line, dotted with blockhouses which crossed the pass between the Red River and Sikiang basins at an altitude of about 300 meters, was opened in December 1894.

It became clear that Indo-China could not outfit itself adequately without outside assistance. From then on the greater part of the railway construction was carried out with borrowed funds, almost entirely underwritten in France. French capitalists thus had the double advantage of collecting overdue dividends and furnishing the construction supplies, which increased the colony's imports up to 1906. The first of these big bond issues, which amounted to 80 million francs and was guaranteed by the French government, was authorized by decree on February 10, 1896, and oversubscribed 28 times. Two years later the law of December 25, 1898, authorized a 200 million franc bond issue, designated exclusively for the development of the program popularly known as the "Doumer program," which had been approved by the French Parliament at the instance of Governor Doumer although its outlines had been drafted by his predecessors.

The program's main item was the *Transindochinois* line which would link the two great deltas of the north and south, as well as connect the frontier of China with that of Siam west of Phnom Penh. The construction work along the Annam coast was very costly. In the deltas the coastal areas usually provided a good sandy roadbed; almost everywhere the rocky sub-soil, particularly where it was granitic, made good ballast; and the labor supply was abundant and manageable. But crossing wide estuaries meant building costly engineering works, and flooded plains, innumerable embankments. Spurs from the Annamite mountain chain had to be tunneled through, except when they were separated from the back country by valleys like that at Tan Ap in North Annam or that surrounding Padaran Hill in the south. It was felt that this line would serve as an imperial link in strengthening the Indo-Chinese Union, that it would facilitate the exchange of produce between the different regions where varying climates and degrees of skill among the natives yielded a variety of commodities, and that it would encourage the emigration of Annamites from Lower Tonkin to the undeveloped south. Feeding into this main line were to be railways penetrating the interior; of the two main branches, one would link the coast of Annam to the great middle reaches of the Mekong, and the other enter the heart of the Chinese province of Yunnan.

The expansion of railway construction was most rapid between 1898 and 1913. Most of the roads were built by the government which awarded the construction of the roadbed to contractors and dealt directly with the suppliers for the material. Only that part of the Yunnan line located on Chinese territory was built and supplied by the company which had the operating concession. Building this road was much more difficult than any of the others because of the very rough terrain and the unhealthy climate. Material and food supplies for the coolies were carried to the supply stations on the backs of men and mules, over a narrow service road which often climbed very steep slopes. In the deep Nam Ti valley malaria swept through the Chinese and Annamite workers—there were up to 60,000 people working at one time on this line who had been mustered only with the greatest difficulty—and

also struck heavily among the European engineers and superintendents.

The first job completed on the *Transindochinois* system was the change in gauge from 60 centimeters to one meter on the line between Lang-son and Phu Lang Thuong, and its extension as far as Hanoi, which was made possible by the construction of the famous Doumer Bridge (1.68 kilometers long) across the Red River, opened in 1902. By 1905 the line had been completed as far south as Vinh.

In 1906 a second section from Tourane to Huê was opened to traffic in order to give the Annamite capital access to sea transportation, and in 1908 it was extended to Quang Tri at the foot of Ai Lao Pass—the most expeditious route to the middle Mekong. Finally, construction of the southern section of the line was begun, starting from Saigon. Of the two routes first suggested as links between Cochin China and central Annam, one over the Moi plateaus and the other following the coast, the latter was chosen since it passed through more populous areas and was less expensive to build. The line from Saigon to Nhatrang was opened to traffic in 1913.

As for the Haiphong-Yunnan railway, it reached Vietri at the western edge of the Tonkin delta in 1903 and Lao Kay on the Chinese frontier in 1906. Its construction in Chinese territory required 5,000 meters of bridges, viaducts and aqueducts, and 155 tunnels totalling approximately 18 kilometers. The line climbs to Chouei Tang Pass, its highest elevation (2,030 meters), by a grade of more than 2.5 per cent in places. The first locomotive over this road reached Yunnanfu on April 1, 1910.

Thus on the eve of the World War, Indo-China's rail system had a total mileage of 2,012 kilometers, including the 464 kilometers of the Yunnan line which were located in China.

During the war and up to 1922 there was very little further development; there were shortages of both personnel and funds and those available were used chiefly in building roads and irrigation works which were considered more pressing. The Lang-son line was extended as far as Na Cham on the navigable reaches of the Song Ky Kong, tributary of the

Sikiang. In nine years only 52 kilometers of new line were opened to traffic.

Since 1922 new loans have permitted active resumption of the interrupted work. The northern and central portions of the *Transindochinois* are united by the Vinh-Dong Ha line which was put into operation in 1927. This part of the line runs through an inland valley in order to avoid the rugged coast line at Porte d'Annam, and at Tan Ap runs close to the Annamite chain under the pass over which the Laos railway will climb.

The section from Tourane to Nhatrang, the most difficult on the *Transindochinois* because of the spurs from the Annamite mountain chain, still remained to be constructed. Here again, the line could be routed through the inland valleys between Qui Nhon and Tuy Hoa, but south of the latter the granite range, *La Mère et l'Enfant*, made it necessary to cut several tunnels through the Varella mountains, one of which—the Babonneau—is 1.175 kilometers long. This latter portion was opened to traffic in 1936, at long last assuring continuous rail connection between Hanoi and Saigon.

The route chosen for the *Transindochinois* has often been criticized. It has been argued that it parallels the mandarin road and competes with coastal shipping. Furthermore, it is pointed out, it crosses areas which are exposed to typhoons and floods. In central and southern Annam particularly, the road is often gutted by violent floods which come down from the nearby mountains in the autumn. In 1938, a year when, it is true, atmospheric disturbances were exceptionally severe, railway traffic was interrupted for several weeks and the transshipment of goods over long distances had to be undertaken by trucks. Certainly a route across the inland plateaus, at least between Saigon and Hué, would have avoided these difficulties. But there too construction would have been costly; and above all, in a region only sparsely populated and with no promise of rapid colonization, such a venture would have risked large operating deficits for a long time.

Plans for branch lines from the *Transindochinois* into the back country have not met with much success since the completion of the Yunnan line. Dalat, the popular mountain

resort in the south, was finally reached in 1933 by a branch line, two sections of which are rack railways. Since 1935, Phnom Penh has been linked to Battambang and to Mongkolborey, via the south bank of the Grand Lac, but the plan for the Saigon-Phnom Penh line has been postponed. Finally, a line was opened in 1933 from Beng Dong Xo, north of Saigon, to Loc Ninh in the red lands.

Laos still lacks railways. Some years ago surveys were completed on the projected line from Tan Ap to Thakhek, which had been selected as the shortest and most convenient route between the coast of Annam and the Mekong. About twenty kilometers of rail were laid from Tan Ap as far as Xom Cuc, and a *téléférique* built to hoist material and supplies from the workyards to Mu Gia Pass which will be traversed by a tunnel at an altitude of 370 meters; a service road was built in order to assure the easy maintenance of the *téléférique*. The roadbed beyond Thakhek was also started, but budgetary difficulties caused the stoppage of work.

The present length of completed lines is 3,372 kilometers, including the entire length of the Yunnan line, or 2,908 kilometers in Indo-China alone.

Operations

Like most of France's colonial railroads, those of Indo-China are one-meter roads, a gauge which has also been adopted in the other countries of the peninsula and in much of British India.¹ The minimum radius of curves is 100 meters; the grades are rarely more than 1.5 per cent, except between Lao Kay and Yunnanfu. The ties are usually of metal and 30 kilogram rails are progressively replacing lighter ones. The wood-burning fire-box, until recently in general use on the southern portion of the *Transindochinois*, is now rather seldom seen. Commercial operating speed is little more than 30 to 40 kilometers for ordinary passenger trains, and 20 for freight trains, but fast schedules have been inaugurated on certain runs. Thus daily trains cover the 1,728 kilometers between Hanoi and Saigon both ways in about 40 hours—an average speed of 42 kilometers per hour; sleeping cars and

¹ Most of China's railways are standard 1.41 meter (4' 8½") gauge.

diners make the trip a comfortable one. A fast weekly service unites Hanoi and Yunnanfu in 22 hours, which is an average of 34 kilometers an hour for the 762 kilometers, most of which is over very hilly country: this speed is made possible by the use of a (gasoline-powered) Michelin engine in Yunnan. These *autorails* also operate over certain sections of the government-operated lines, for example, between Saigon and My Tho Saigon and Bien Hoa, Hanoi and Phu Lang Thuong, and Hanoi and Nam Dinh. On the latter, a speed of 50 kilometers an hour is attained. Trains usually run only by day. These facts, which result from the necessity of reducing construction costs, must be borne in mind in any consideration of the revenue of the railway system.

Another factor which distinguishes the railways of Indo-China from those of France is the relative importance of passenger traffic and passenger revenue. The trains provide four classes of passenger service, the first three usually being combined in one coach. The fourth-class coaches, reserved for the natives, have benches along the sides, the central passage accommodating hand baggage; these cars immediately became very popular; peasants chattering noisily or sleeping amid piles of assorted parcels including both chickens and pigs, and food and drink vendors passing from one end of the train to the other, make a colorful and amusing picture.

However, the distribution of traffic has changed considerably since the inauguration of the railways. Up to 1920 the number of passengers increased steadily: in 1920 passengers (including baggage) accounted for 71 per cent of all revenues on the government-operated lines, and for 50 per cent on the Haiphong-Yunnanfu line. After 1920 competition from automobile transport became very important; in 1937, notwithstanding an upswing in the number of passengers—an increase interrupted by the depression—passenger revenue fell to 49 per cent for all lines except the Haiphong-Yunnanfu where it dropped to 24 per cent.

The volume of travel is in direct relation to the density of population in the regions traversed. The natives rarely take long trips; as a rule they take the train only to reach the mar-

ket place or a neighboring city, to visit their parents or to make a pilgrimage. The average distance traveled is short and has lengthened only slightly from 39 kilometers in 1913 to 46 kilometers in 1936; in the latter year the average revenue per trip was .27 piastre.² There is no doubt that to a certain extent the railways encourage migration, making it easier for natives to return to their villages during the first part of their term of exile; this was one of the main arguments advanced for hastening the completion of the *Transindochinois* and extending lines into the hinterland. However, the mass migration which would put an end to the congestion in the northern deltas could not be produced by railways alone; the comparison often drawn between Cochin China and the Far West of the United States is not a realistic one.

The railways of Indo-China cannot profit from a very heavy volume of freight. In fact the great export commodities—rice, corn and coal—are usually shipped by river, or are loaded directly onto ocean-going vessels. Inter-regional trade is restricted because the coastal plains which are linked by rail communications almost all produce the same things; and here again, because of the railway's location, competition with river or ocean traffic and, since the War, with automobile transportation, must usually be reckoned with. The railways must compete by adjusting rates, increasing the number and speed of trains, and pooling commodities, as they do in France. The principal freight items carried are rice and other food products, cattle on the hoof, and lumber for construction work and carpentry.

In 1913, 454,000 tons of merchandise were carried by the railways of Indo-China; in 1929, 1,118,000; in 1937, 1,171,000. The average haul per ton carried in the latter year was only 172 kilometers; but in 1913 it had been merely 122 kilometers. The proportion of freight revenue, although it has increased in relation to total traffic, is still very much lower in value than it is in the mother country. It is greatest on the Hai-phong-Yunnanfu line, for here the railway does not compete with other means of transportation. But traffic on this line is only to a very slight degree indicative of the real economic

² Since 1931 the piastre has been valued at 10 francs.

activity of Tonkin for it depends largely on Yunnan's internal trade and the transit trade between Haiphong and the Chinese province. This transit trade comprises products which are relatively high priced and able to pay high rates, such as tin and cotton fibre; the shipments on this line show a greater decrease during the months of August and September than they do on any other line, due to the interruptions occasioned by floods and landslides.

On the rail system within Indo-China rice shipments are mainly responsible for seasonal variations in traffic; on the northern lines the grain is transported in December and January and again in June and July, after the second, heavier harvest of the year. On the Cambodian lines, revenues show a greater increase in March and maintain a high average through April and May, when the paddy is shipped from the Battambang area.

When revenue is compared to operation costs, only the Yunnan line shows a steady, favorable balance from the time service was inaugurated, and yields a reasonable return on the capital invested; the reason for this has already been given. Furthermore, these profits are divided between the colonial budget and the stockholders. As for the rest of the railway system, operations are hardly profitable, if interest on the investment, especially that accruing on government-borrowed funds, is taken into account. There were deficits from 1932 to 1935,³ but that was not a condition peculiar to the railways of Indo-China. Certainly the railways have rendered and will continue to render great service to the country. In order to appreciate their importance fully it is necessary not only to examine the financial returns, but also to take into account the role played by the railways in the development of the colony and to try to evaluate the additional benefits they have brought to individuals and, indirectly by means of taxes and other assessments, to the State.

No immediate extension of the system is contemplated within Indo-China. The projected rail connection to Laos has apparently been abandoned, but the *téléférique* already built

³ For further details, see A. Pouyanne, *Les travaux publics de l'Indo-chine*, 1926, pp. 241-260.

is being used to transport merchandise between Xom Cuc, the Annam railway terminus, and Ban Na Phao on the Laos side of Mu Gia Pass; from Ban Na Phao to the Mekong, traffic is carried by truck.

On the other hand, it is probable that the rail systems of Indo-China and China will soon be connected. A line is being constructed between Na Cham and Nanning via Langchow. In addition, it is hoped that at least part of the trade from rich Szechuan will be diverted through Tonkin, by extending the Yunnanfu line to the Yangtze. It is to be regretted in this connection that the disparity in gauges between the Indo-Chinese and Chinese railways, most of the latter being broader, will create troublesome delays in the future trade between the two countries.

ROADS

In Indo-China as in many other colonial lands, it had long been thought that railways ought to take precedence over roads. At least this was the opinion prior to World War I. While railways were expanding with the aid of government bond issues, road work was carried on without any comprehensive plan, each country in the Union, or sometimes each province, using its own resources. Few of an administrator's pleasures are greater than opening a new road little by little through the brush-covered valley bottoms, where no automobile has ever traveled.

However, in 1914 the *Transindochinois* was far from completion, and only the Yunnan branch penetrated the interior. Loans could not be renewed so soon. Little by little, the era of the automobile was making itself felt everywhere. It then became apparent that the unity of Indo-China might be more quickly and easily accomplished by highways which would guarantee, more flexibly and more cheaply than the railway, the penetration and improvement of the back country. Following a comprehensive study, an order was issued in 1918 classifying roads in two categories: local roads which would remain the responsibility of the several countries, and colonial roads, the main ones, which should be built and maintained out of general budget funds by Public Works Department

engineers. From then on, there was rapid progress and the road system became more and more logical and compact. It is undoubtedly one of the best in the Far East. In 1936 Indo-China had 27,500 kilometers of banked roads, usually passable throughout the year, 17,500 of which were metalled.

It is not surprising that the colony's main highway parallels the *Transindochinois*, following the fringe of the Annamite deltas, which seethe with humanity. The "mandarin road," colonial highway Number One, can be compared, only in the route followed, with the road linking Tonkin and Cochin China, planned by the emperors of Hué at the beginning of the 19th century. Despite their efforts when the French arrived it was no more than a trail, interrupted by frequent ferries and crossing spurs of the Annamite mountain chain by stone steps. In 1913 only certain sections were passable for push carts or light carriages, and at many points on the Annam coast the road became lost in the sand dunes or beaches. Wealthy travelers were carried in litters or sedan chairs and their luggage on men's backs. The coolies walked fast, sometimes at a jog trot; they worked in relays from stop-over inns called "trams," from two to two and a half hours apart. To save time, they announced their arrival by shouts, and the busy traveler was promptly taken over by other chairmen. The "coolie tram" service was particularly hard between Hué and Tourane, where it crossed Nuages Pass, and was traveled by Annam officials, either going on holiday or taking up a new post. "A traveler's journey accompanied by his baggage, had all the appearance of a caravan."⁴

Each year since 1913 large sums have been appropriated in the general budget for "Colonial Highway No. 1." It has been improved constantly; the foundation has been widened to six meters, and it is metalled to a width of from 4½ to 5 meters. The number of ferries has been reduced from about fifty to five on the stretch from Hanoi to Saigon. Though automobile traffic between the two cities is interrupted when a violent typhoon accompanied by flooding rains hits the Annam coast, it is much more quickly restored to service by means of temporary detours than the railroad can be.

⁴ A. Pouyanne, *op. cit.*, p. 68.

From the mandarin road, others branch out over the country. Naturally the system is most extensive in the deltas. In lower Tonkin the dikes, which have been considerably reinforced since the French occupation, are often used as roads. In Cochin China, roads were already well developed, and in the Saigon area in 1913, they were rapidly extended to the central part of Cochin China, and later westward to the delta. The broad tributaries of the Mekong are quickly crossed by large motor-driven ferries. However, automobiles can go no further south than Camau; the forestry stations and mangrove charcoal furnaces in the extreme south of the peninsula can only be reached by boat, through the winding "rach."

Cochin China's road system connects with that of Cambodia at Kompong Cham in the north, and at Chan Doc and Ha Tien to the southwest. But the direct route between Saigon and Phnom Penh is the road via Soai Rieng which goes north of *Joncs plain* and the Long Xuyen and Chan Doc area on the great arms of the Mekong which is subject to annual floods. The Thai frontier is easily accessible throughout the year, interruptions being the exception. The mandarin road is extended by two roads, one on either side of Lake Tonle Sap via Angkor or Pursat and Battambang, and these rejoin each other at the Thai frontier.

The road stops a little beyond the frontier, at Aranya, where the only connection with Bangkok and Singapore is by rail.

Penetration of the hinterland was aided by the progress of cartography. It is impossible to emphasize too strongly how the work of the *Service Géographique de l'Indochine*—all too little known and appreciated—has assisted in developing a knowledge of the terrain and the use of the country's resources. The basic map, on a scale of 1:100,000, today includes approximately two thirds of the colony's total area; by its 25 meter contour lines and by careful hydrographical outlines, it has taken many uncertainties out of the work of engineers and excavators. Road building no longer depends on good luck, no longer follows ancient native footpaths around sharp curves and over steep ascents, at the risk of encountering impassable obstacles, as was often the case during legendary

times; the general direction of the route from one end to the other can be laid out in advance with the knowledge that in all probability it is the best.

The main road systems serving the mountainous regions are those of Tonkin, Laos and the Moi country. From Hanoi four principal roads diverge toward the Chinese frontiers, following the natural routes of geography and hydrography: the coastal route from Mon Kay via Quang Yen and Campha; one from Lang-son to the Chinese border, extending toward Langchow and Nanning, capital of Kwangsi; and finally those from Cao Bang and Ha Giang, climbing through the valleys of the Song Cau and the Clear River. The extent of the road penetration into the mountains of the north is easily explained. Northern Tonkin is not only the gateway to that part of China of which the Red River is the natural outlet, but it has considerable economic riches of its own; it is comparatively populous, especially along the Chinese frontier in the group of fertile valleys running from Cao Bang to Lang-son. It is also a mining region. Transportation is relatively easy through deep valleys which encircle the granite and limestone mountains, in a setting that is varied and unusually picturesque. Finally, strategic considerations enter into the matter of completing the network of roads in this region bordering China, where pacification was recently the principal duty of the French troops. Ideas have changed since the time when a road-building Governor General was accused of "working for the interests of piracy and to prepare for the invasion of Tonkin by Chinese troops."⁵

It will be by highway transport that the complete opening up of Laos, already partly realized, will be accomplished. The first job was to connect the wide reaches of the middle Mekong with the China Sea, across the Annamite ridge which is very narrow at that point. The best road, metalled throughout and open all the year around, is that between Savannakhet and Quang Tri on the mandarin road, through Ai Lai Pass (410 meters). Another which is more mountainous and less dependable, but a little shorter, goes from Vinh to Thakhek via Nape,

⁵ De Lanessan, "*La colonisation française en Indochine*," Paris, 1895, p. 326.

crossing the Annamite summit at an altitude of 715 meters. Throughout its Laos section it has wooden bridges which must be rebuilt after each rainy season, with a resulting large increase in taxation. It competes with the new road from Se Bang Fay, which extends the *téléférique* west of Mu Gia Pass.

In the mountainous country lying between the Red River and the Mekong, road work is more difficult than in northern Tonkin. A series of ridges and high plateaus running northwest to southeast presents serious obstacles to the extension of roads into the region. Moreover, the population is scarce and the mineral resources, apparently not as great as Tonkin's, remain unexploited. However, the two capitals of Laos, Vientiane and Luang Prabang, will not long lack regular communications with the deltas of Tonkin and North Annam; during the dry season it is already possible to go by automobile from Hanoi to Luang Prabang through Vinh and the Tran Ninh plateau (the Astrid road or Colonial Road No. 7).

Finally, the inadequacy of the Mekong, which seems practically irremediable, as well as Saigon's desire for the largest possible share of the Laos trade, has resulted in construction of a road branching off the Cochin China system and going up river from Kratié. This was finished as far as Paksé between 1935 and 1937, in less than three dry seasons—thanks to the systematic organization of the work which mustered a total of 6,500 coolies in this unhealthy and sparsely populated region. The trip from Saigon to Paksé can be done in about twelve hours; it used to take six days by launch. The metalled highway is to be extended along the left bank of the river as far as Vientiane.

By means of these roads the ports of Indo-China hope effectively to rival Bangkok. As a matter of fact Thailand now draws a large part of Laos' overseas traffic thanks to the railroads which early were built as far as Chiengmai to the north and across Siamese Laos as far as Khon Kaen and Ubon; these termini are linked to the Mekong by motor highways which are steadily being improved by Thailand.

South of Ai Lao Pass, Indo-China broadens out between the Mekong and the Annam Coast into a series of plateaus which are separated by small rivers emptying into the Mekong,

and are inhabited by the Moi. This area, which was divided among Laotian, Annamite and Cambodian influences at the time of the French conquest, is today under the four administrations of Hué, Vientiane, Saigon and *Phnom Penh*. It has long been neglected, and is still little known. The murder of explorers and administrators like Odend'hal (1904), Henri Maître and others has long kept alive its reputation for savagery. Until quite recently the elephant, captured and domesticated by the Laotians and Muong of Ban Don (Darlac) was the most practical means of transport through the Moi forests and grasslands. The development of Dalat, however, involved the construction of roads which scaled the Annamite ridge and emerged to join the mandarin road at Phanthiet and Phanrang. Beginning in 1925, the red lands' potentialities for European colonization started a sudden rush a little further north, toward the basaltic plateaus of Darlac and Kontum. The depression came soon enough to overthrow these hopes and delay their development. However, connections between Kontum, Pleiku and Qui Nhon on the one hand, and Ban Me Thuot, Ninh Hoa and Nhatrang on the other, were now regularly assured. Bus and truck companies carry passengers and freight between the Annamite coast and the centers of colonization on the Moi plateaus; already some vehicles are emblazoned with the name of a Rhadé from Darlac.

A strategic road across the plateaus from Saigon to Tourane, paralleling Colonial Route No. 1 is planned. It will be particularly useful in the autumn when the typhoons ravage the coast and is already partly built. A steel bridge over the Dong Nai (Da Nhim) now makes it possible to reach Dalat from Saigon in the dry season in five or six hours, via Blao Pass and Djiring. In addition, automobile traffic between Ban Me Thuot and Kontum is possible almost all year. Only the sections from Dalat to Ban Me Thuot and from Kontum to Quang Nam through the valleys encircling the Sedang range on the west and north still need a good deal of work. Possibly that road, which is of general importance, will by-pass Dalat in order to take the shorter and easier route between Saigon and Ban Me Thuot via Budop and Poste Maître, already open to automobiles in the dry season.

The main highways of Indo-China—those which are open to automobile traffic throughout the year—are interlinked and extended by roads built at much lower cost and provided only with light bridges of wood or bamboo, but still passable, except during the heavy rains, for experienced drivers. By imperceptible transitions, we thus come to the traditional native trails following along the ridges and losing themselves in river beds.

Old fashioned methods of transportation will be maintained for a long time to come. The elephant is still in use in certain hilly sections in the south, particularly in the Cardamomes mountains, Darlac and lower Laos, but there are probably not 2,000 domesticated elephants in the whole country. The use of oxen as carriers, which is extensive in Thailand and on the Shan plateau of Burma, reaches into upper Laos in Indo-China. In the mountains of the north, however, and particularly in military areas, small native horses and mules are used more frequently than oxen as beasts of burden, following the example of the Chinese caravans coming down from Yunnan. The improved road system has resulted in increased numbers of animal-drawn vehicles. In upper Tonkin horse-drawn carts had already proved their value in supplying the troops and evacuating the wounded at the time of the conquest. In Cambodia and lower Laos, countries of wide, level plateaus, with a long dry season, small oxen are harnessed to rustic carts which are shaded by woven bamboo tops. Ox-carts are used on the Cochin China roads to carry merchandise, while the natives crowd into tiny horse-drawn carriages, picturesquely called "match boxes." The use of animal-drawn vehicles is gradually spreading northward from Cochin China and a considerable number may be seen on the mandarin road, especially around Qui Nhon. They are rarely found in the northern deltas beyond Porte d'Annam.

The use of human beings for transportation has by no means disappeared. A large part of the traffic over the mountain roads is handled by this most economical and adaptable means, the carriers using baskets or bamboos resting on the shoulders of two people walking single file, or a flexible pole

balancing two equal weights on either end and carried by one person. The latter is the most widely used in the Annamite plains of the north, where except for a few saddle horses, animals had never been used for transportation before the arrival of the French. Here, again, it is human beings who push the wheelbarrows and pull the carts and the rickshaws imported from Japan shortly after the French conquest. In recent years the cycle-cart, already extensively used in Thailand, has made an appearance, especially in the cities of the south and in Laos. But on the whole, vehicles are not often seen in the country. Small trade between one market and another is still carried largely with the simple balancing pole, or *ganh*. The long lines of men and women carriers, trotting along barefoot at the side of the roads, among passing automobiles which they have learned to fear, is a familiar sight in the Annamite deltas.

Improvements in the road system have been accompanied by increased numbers of automobiles. In 1913, there were only about 350, most of which were used in the large cities like Saigon and Hanoi for evening pleasure drives. Automobile imports have increased, particularly since 1924, 3,000 being imported in the single year 1929. At the end of 1933, there were 17,800 motor vehicles in Indo-China. Most of these were pleasure cars, more than half of which were owned by wealthy Indo-Chinese, the remainder belonging to Europeans and Chinese. The people as a whole profit from the use of commercial automobiles as common carriers, which give keen competition to the railroads and river transportation. A favorite Annamite undertaking is to purchase a second hand automobile, already well worn out, keep it repaired as far as possible until it falls apart, and cram it with passengers and their packages to the bursting point, in defiance of all police regulations. Several of these small companies enter into the keenest rivalry on each new road as soon as it is opened. These common carriers had between 40 and 50 million passengers in 1933. A recent survey found an average of about 700 automobiles and busses a day crossing the Doumer Bridge on the outskirts of Hanoi.

WATERWAYS

Before the French occupation, waterways were the chief transportation routes. Today the highways and railways have not wiped out water transportation; the latter still handles some internal traffic and plays an important role in carrying export commodities to the large ports.

Natural conditions combine with economic factors to favor water traffic very unevenly in different parts of Indo-China. The geography of the peninsula prevents free communications between the main water courses. In French territory, there is much more navigation in the Mekong basin than on the Tonkin and Annamite slopes. But in each of these sections a distinction should be made between the coastal plains and the back country. The latter offers only meager and intermittent opportunities to large-scale or average size shipping. While the valleys are often deep, recent geological changes have delayed the wearing down of their contours. The largest streams are broken by falls and rapids rather close to the sea; not one is an adequate outlet for present day trade from the interior provinces. Whatever may be the results of public works now under construction or planned, they can be counted on only to a very small extent in the development of these vast areas. River navigation in Indo-China is really important only in the two large deltas, and much less so in the north than in the south.

As a matter of fact the Red River is very inconvenient. In the first place, its volume is extremely irregular;⁶ the heavy summer rains, whose runoff is hastened by the steepness of the slopes in the back country, increases its volume until its height is reached, usually in August, the month when the average volume at Hanoi for the 1912-1935 period was 11,243 cubic meters; in contrast the average volume falls to 1,657 cubic meters in December and reaches its minimum in March (1,052 cubic meters) at the end of the season of fine drizzles

⁶ See the recent study by M. Pardé. "Le régime du Fleuve Rouge." *Annales de Géographie*, 1938, pp. 191-195 based on figures gathered by the *Service des Travaux Publics du Tonkin*. In its course, the Red River recalls the glacial course of the Arve River at Chamonix, even though the factors are entirely different.

before the first storms. Thus the ratio between the highest and lowest monthly average is about eleven. This volume dropped to only 926 cubic meters in May 1928 and, as a result of an unusual flood in 1915, rose to 28,000 cubic meters at Viétri, just below the confluence of its two large tributaries, the Clear and Black Rivers, which, like the Red River, originate in Yunnan. This is double the maximum volume of the most abundant river in France, the Rhone at its junction with the Durance.

In addition, the river carries a great deal of sediment, because of the large proportion of friable soils in the river basin, especially in the red lands which gave the Red River its name. One cubic meter of river water contains 500 grams of silt in the dry season and as much as three and one-half kilograms during the floods. As a result the river's bed is changeable and obstructed by very impermanent shoals, which greatly hinder navigation.

The hand of man has changed the direction of the flow of water across the delta, but primarily with a view to protecting the fields from floods; this is the main purpose of the dike system. Navigation was only a secondary consideration although it has undoubtedly been aided to some extent by stabilizing the river's channels, while the dikes also serve as roads and facilitate land traffic. The *Canal des Rapides* and the *Canal des Bambous* are, as a matter of fact, natural waterways which have been straightened and deepened. The Red River's branches, together with the large transverse arms linking them to each other and to the Thai Binh, form a loose network which is pretty generally navigable throughout the delta.

The projects carried out by the French have likewise had irrigation as their main objective. However, some dredging has been done on the most frequented waterways, particularly the *Canal des Bambous* and the Lach Tray which connect Nam Dinh and Haiphong; stabilizing the lowest level of the Red River is practically impossible, but its banks have frequently been strengthened in order to limit changes in the river's course and a canal has been dug between Song Cau and Song Thuong.

A rather large amount of shipping uses the waterways of Lower Tonkin. The traveler is astonished to see, outlined against the plains' horizon, the wide sails of sampans and junks which seem to glide over the rice fields. There are regular schedules of launches, driven by propellers or paddle wheels, between Haiphong, Hanoi, Nam Dinh and most of the principal towns of the delta provinces, and operated by European, Chinese or Annamite companies. Building materials, pottery, rice, pickles, alcohol, etc., are carried in these boats, which also take large numbers of native passengers; more than 300,000 embark or land every year at Hanoi. Unfortunately, this port suffers from changes in the water level, which floods sometimes raise eleven meters above low water mark; moreover, the low water mark is gradually moving away from the city by natural processes and its stabilization demands careful control mechanisms.

Beyond the delta region, steam launches ply regularly up the Red River as far as Yen Bay, up the Clear River to Tuyen Quang, and the Black River to Cho Bo. From there on, traffic is relayed by sampan and finally by canoe. Forest products are sent down river on trains of rafts to Hanoi, their principal market.

The waterways of Annam, running through very narrow valleys and fed by rains which are even more irregular than those of Tonkin, do not permit steam navigation except for very short stretches, mostly south of Porte d'Annam. Between February and September, these are limited to a total length of about 300 kilometers for the whole region. River traffic in Annam seems to have decreased greatly since the French occupation. Before that, a series of arroyos and canals allowed junks to ply between Hanoi and Hué by a wholly inland route, without venturing to sea except to skirt mountainous spurs, the largest of which is the Porte d'Annam, thus avoiding storms and pirates as far as possible. This route is much less important now that coastal trade is safer and is carried on not only by native vessels but also by large European freighters. Moreover, the old canal route competed with the *Transindochinois* and the mandarin road; the maintenance

of the canals has been neglected and they have gradually filled up with mud.

The Mekong delta is the most suitable for river navigation. The course of the Mekong, less well known than that of the Red River, is likewise very irregular. However, the floods which are sometimes of considerable volume, pouring as much as 50,000 cubic meters past Phnom Penh, rise less suddenly. The rising waters are first checked by overflow into the gutters or *bang* paralleling the river, which follow along at low water level from Vientiane down. In Cambodia, Tonle Sap itself stores part of the floods. The difference between high and low water is often as much as eight to ten meters at Phnom Penh, where the level rises continually up to the end of October, but downstream from that city, which is 350 kilometers from the sea, the water spreads out and lowers rapidly, forced out farther and farther into the vast hollows of northern Cochin China, for example the Joncs Plain.

Here, in fact, the flowing waters have not been hampered by the hand of man, as they have in Tonkin. Most of the country's vast expanses were uncultivated when French admirals began to administer it; the population is still much less dense than in the northern deltas and had not felt a need to enlarge the area of flood-protected rice fields by enclosing the rivers' divergent branches between high dikes. These streams flow freely between the silt banks which they themselves built up; wet rice, grown in hollows which are periodically submerged by floods, grows taller as the water-level rises.

It is during the dry season that navigation would risk interruption if it depended only on the runoff from the continental mass. But then the Mekong's divergent branches, like the waterways of the eastern delta—the Vaicos, the Saigon River and the Dong Nai—are washed by strong ocean tides. As a matter of fact, the tide is somewhat stronger here than it is in the Gulf of Tonkin and reaches much farther up the flat stretches of Cochin China; at Saigon, daily tides raise the river level at least two and one half meters, the maximum being 3.60 meters. These ocean currents reach as far as Trian on the Dong Nai and almost to the sources of the Vaicos and

Saigon Rivers; on the Mekong, the tides rise and fall as much as 50 centimeters at Phom Penh, even in the dry season.

Thus, throughout the year the workings of floods and tides improve circulation on Cochin China's waterways. Navigation has played an important part in the Annamites' colonization of the delta, especially since the network of natural streams has been extended and improved. At the time of the French occupation a number of canals already joined the Mekong to the Saigon River; and also to Ha Tien and Rach Gia on the Gulf of Siam. The American, John White, who lived in Saigon in 1819 and 1820, mentioned the completion of a canal which had made communication possible with Cambodia: "It is 12 feet deep throughout its entire course and about 80 feet wide. It was dug through the forests and across immense marshes in the space of six weeks. Twenty-six thousand laborers toiled in gangs, night and day, on this amazing undertaking, and of these, 7,000 died of exhaustion or disease."⁷ But the task accomplished since that time has been enormous. Here French engineers did not find, as they did in lower Tonkin, a delta already improved by countless generations of human beings, to which only a few careful, piecemeal alterations could be made. Here they were face to face with a new country, still half wild. Roads were difficult to build and maintain in these low, marshy lands. Only by improving existing waterways and creating new ones was it possible to develop these uncultivated lands and at the same time finally pacify and survey the country.

Started in 1866 by French admirals, the work was carried on until 1895 largely by manual labor. The main job was to prevent the formation of the shelving ridges built up by two opposing tidal currents in the natural and artificial *rach* or streams connecting the river's divergent branches. Sometimes this was remedied by building storage reservoirs, as for example on the Duperré and Saintard canals. The careful leveling operations carried out by the *Service Géographique*, which now extend over the greater part of the delta, and the constantly increasing but nevertheless still very incomplete

⁷ Reference translated and annotated in P. Midan, *Bulletin des Amis du Vieux Hué*, 1937, Nos. 2-3, p. 244.

knowledge of hydrological conditions, were both extremely helpful to the colonial engineers.

Beginning in 1893, public works projects were undertaken on the basis of five or ten year programs and let out on contract to private companies subject to the constant supervision of the *Service des Travaux Publics*. Increasingly powerful mechanized dredging equipment was used; in later years huge suction and compression dredgers decreased the cost and accelerated canal digging in muds which were often mostly water. The amount of earth dredged annually, which did not exceed 140,000 cubic meters in 1893, fluctuated between six and ten million cubic meters from 1913 to 1930.⁸

More than 1,300 kilometers of main canals were dug, with an upper width of 22 meters and a depth of more than two meters below that level at the lowest dry season tide. The rectilinear courses of these canals, cutting across the winding arroyos, characterize central and eastern Cochin China, which is entirely partitioned into geometric sections very different from the complicated and sinuous pattern of the canals in Tonkin. When including the mileage of navigable rivers and canals, there are more than 2,000 kilometers of main waterways in Cochin China. It was by means of the canals that the Annamites moved into the Transbassac, the new colonists usually arriving in sampans and building their huts on the earth piled up by the dredgers.

Secondary cuts branch off the main canals, making the network ever more compact and making possible the permanent cultivation of almost the entire delta. At first overshadowed, the specifically agricultural function of the canals of Cochin China later took first place. They should be used not only for transportation, but also as a means of irrigation and drainage.⁹ In practice, the building of secondary and tertiary canals was very often neglected by the landowners in the haste to get the land into production and in the feverish speculation which have characterized the development of eastern Cochin China for fifty years. It also happens that the layout of the large canals, especially the older ones, was not

⁸ In 1937, it was approximately 2 million cubic meters.

⁹ See below, p. 221.

adapted to the specific needs of rice-growing. These difficulties became particularly apparent during the depression and a special division of the *Hydraulique Agricole* was charged with remedying the situation.

Indirectly the canals had benefited agriculture by encouraging the settlement of the region and by assuring the transportation of important export products, rice and also corn, to market. It is chiefly the trade in these two commodities which give the waterways of Cochin China their unusually animated appearance. The trade is carried largely by junks, 2,660 of which are of more than 16 tons burden; for the most part they are Chinese-owned. Not long ago they utilized only the tide's ebb and flow, the monsoons which inflate the huge matting sails, and towing by manpower. Towing makes possible much more rapid movement of shipping and is still preferred by many. Larger ships include motor barges of from 50 to 350 tons (there were 21 in 1929) and a fleet of steam launches, today comprising 191 vessels of more than 30 tons each.

Figures collected in 1937 made possible an approximate evaluation of the total tonnage which has traveled over the most frequented Cochin China waterways as follows: four million tons near Sadec on the Lap Vo, linking the Bassac to the Mekong's upper reaches, and 4,200,000 tons on the Duperré Canal between the My Tho branch and the great Vaico. The growing road system has undoubtedly cut into the number of river passengers, but the transport by water of rice and corn from Cochin China and Cambodia, charcoal from Camau and other bulky cargo will remain the most economical means for some time yet.

The bulk of this traffic converges at Cholon which Chinese trading activity had already transformed into the delta's main industrial and commercial center before the French occupation. The development of the great neighboring seaport could only increase still more Cholon's importance. The town was located on the Chinese Arroyo which joined the Saigon River south of that city. After 1906 new canals—the *Derivation* and *Doublement* canals—had to be dug to meet increased export demands; these have become the main traffic arteries

and their banks are gradually being dotted with warehouses and factories.

There is lively navigation on the Mekong in Cambodia, at least as far up as Kompong Chom. Phnom Penh is a great river port magnificently located at the junction of the Quatre Bras (four branches). The Cambodian capital can even be reached by small ocean-going ships which occasionally ply up the Cua Tien to load buffaloes and oxen. Phnom Penh demands that the Bassac be dredged, thus providing it with a direct outlet to the sea; as things stand it remains wholly subordinate to Saigon-Cholon, exports—especially Battambang rice and corn—only passing through in transit.

Communication between the river and the Tonle Sap is difficult except at high water. Finding no adequate outlet toward the sea, the floods reverse their course and gradually the lake's level is raised to a height of from 13 to 14 meters in places. At such times launches drawing four meters have easy access to the lake, which looks like an ocean and invades the forests along its banks; they can even navigate the tributaries (*stung*) as far as Kompong Thom, Siemreap, Battambang and Pursat. But confluence of the two currents, that flowing back up the Mekong and that coming down the local streams, piles up great deposits of silt at the lake's eastern end, northwest of Kompong Chnang:—the Snoc Trou narrows ("the mouth of the trap") where, after the waters recede, mud banks emerge over which even small sampans must be carried. For all practical purposes from December to May, Kompong Chnang is the end of navigation for ships coming in from Phnom Penh. The lake then becomes a fisherman's domain and near its banks emerge the bamboo wattle fences or *samras*, built to trap fish. The difficulties of water transport for fish products and even more for rice from Battambang, where the harvest is over in February, necessitated the construction of a railway from Mongkolborey to Phnom Penh.

The Mekong appeared to offer a splendid means of penetrating the plateaus and mountains of Laos. At one time it was even suggested that Saigon could be one of the great ports for Southern China. As early as 1866, the Doudart de Lagrée and Francis Garnier mission realized the difficulties

of navigating the river above Kratié. This large river, as a matter of fact, is still very young as far as physical geography is concerned, or rather, a series of recent and still only partially explained tectonic episodes have renewed its youth. It consists of a chain of calm-surfaced reaches, separated by rapids or falls. The chief obstacle to navigation is at Khône where the arms of the river, spread out over an area several kilometers wide, drop 15 meters through torrential and rock-studded channels or cataracts. Here precisely is the border between Cambodia and Laos. Other rapids are scattered both up and down stream, making navigation by launch difficult and uncertain throughout entire sections between Kratié and Savannakhet. It is only at Savannakhet ("the gateway to paradise") that the great navigable reaches begin which permit launches to sail as far as several kilometers above Vientiane without breaking bulk.

Europeans were eager to tame the Mekong. As early as 1890 the *Messageries Fluviales de Cochinchine* had organized a steamship line which, with the help of some trans-shipment, operated as far as Khône. For more than two years the launch, *Argus*, tried to get past the Khône barrier through the channels which canoes sometimes used in descending the river. In view of the failure of these attempts, a narrow gauge railway was built across Khône Island, and by this means gunboats and then launches were carried to the upper river in 1893.

Conditions of navigation have been improved since then, but scouring the river channels has not always produced the desired results, since the river's reactions are difficult to predict; buoying had been improved up to 1925; more than a thousand towers, buoys and landmarks had been built. Hundred-ton launches, drawing one and one half meters, can reach as far as Khône, at high water, about three months a year; in other months, the section between Kratié and Khône, much of which had to be traversed by canoe up to 1900, can now be covered, with only one trans-shipment, by a short thirty-ton launch which can manage the sharp turns of the narrow channels. Above Khône, the most difficult passage is through the sandstone canyon of Kemmarat, where the river attains

a depth of eighteen meters during the heavy floods and the current in some rapids is from nine to ten knots. Since 1910 more powerful launches have been put into service, and were later supplied with semi-Diesel engines; they have gradually reduced the number of changes but the Keng Sa rapids are still impassable at low water and necessitate trans-shipments to motor-canoes.

In 1895 a small gunboat, the *Lagrandière*, went up above the Savannakhet-Vientiane reaches to within 50 kilometers of the Yunnan frontier, about 2,500 kilometers from the sea and 400 meters above sea-level; this was a purely sporting exploit. Since then other steamboats have gone up as far as Luang Prabang, but it was realized that regular traffic could not be maintained through one section, dotted with dangerous rapids. Nevertheless, the trip between the two Laotian capitals previously made by native canoes plying upstream, and by rafts going downstream, has been very much speeded up since 1930 by the use of motor canoes.

In brief, progress is summed up in the following figures: in 1900, at low water, it took 65 days or more to go from Saigon to Luang Prabang; in 1909 the time was reduced to a maximum of 50 days; in 1937 the upstream trip took 37 days, downstream 27; and at high water, it took 27 or 22 days, respectively.

In spite of all this, French Upper Laos is still farther from Saigon by water than Saigon is from Marseille. Even below Vientiane in Lower Laos, the transport capacity of the Mekong depends on the obstacles encountered between Savannakhet and Khône. It is difficult to cut down the present length of the time needed for the journey: the narrowness of the channels and the limited power of the engines which can negotiate them do not permit increasing the useful cargo beyond 100 tons. At low water, trans-shipment is a heavy burden on shipping. In 1936 only 4,644 tons of freight passed the port of Khône going downstream¹⁰ and 5,286 tons upstream.

Thus the high hopes for the Mekong as a means of transportation have been dashed. Experts believe that if additional improvements could increase the traffic to 25,000 tons a year,

¹⁰ Excluding teak logs which are floated down the river.

this is a maximum which would be hard to surpass. Railways and highways will therefore have to furnish transportation which will be justified in the future by our reasonable expectations for an enlarged Laotian economy, if not by its extent at present.¹¹

SEAPORTS

Despite competition with European means of transport, the old and the present-day role of water transportation is permanently recorded in the urban geography of Indo-China. Most cities have grown up in locations close to navigation routes which facilitated trade, either at the junction of two waterways or at a trans-shipment point where goods are shifted from one kind of shipping to another.

In the latter category are the large ports, where river and ocean-shipping meet. As a matter of fact, Indo-China has but two, a duality which reflects the physical structure of the country and coincides with the general division of the population and of economic activity.

In Indo-China, as is also often true elsewhere, the population thins out and becomes less active the farther it is removed from the coast and the two great deltas; the human fireside in the back country does not yet burn very brightly. The mountainous terrain and the absence of much demand for goods explain why trade across the land frontiers is insignificant. In large part it is transit trade which is carried on with southern China, principally over the Yunnan line, and with Thailand through a number of markets (this trade includes a good deal of smuggling). Most of Indo-China's imports and exports pass through either Haiphong or Saigon. Both are delta ports, located at some distance from the open

¹¹ The arguments in favor of the water route are set forth by Colonel Bernard in the *Bulletin du Comité de l'Indochine*, February 20, 1936. Navigation on the Mekong has undergone great changes since the end of 1937, at the expiration of the contract of the *Campagnie Saigonnaise de Navigation et de Transports*, which had replaced the *Messageries Fluviales*. Steam launches no longer negotiate the Kemmarat narrows; there is no longer a regular service between Paksé and Savannakhet. From Savannakhet to Vientiane service is now assured by a company employing flat-bottomed barges and from Vientiane to Luang Prabang and Xieng Sen by motor canoes.

sea; both export a great deal more than they import. But in other respects they are very different, just as Tonkin differs from Cochin China, and their functions are primarily regional.

Haiphong

Haiphong has grown up about twenty kilometers from the open sea, on the right bank of the Cua Cam, one of the outlets of the Thai Binh, near the northern edge of the Tonkin delta. The Thai Binh river system is interlinked with that of the Red River which can be reached most easily via the Song Tam Boc and the *Canal des Bambous*. The latter apparently was the most frequented route from the sea to Hanoi in 1872 when Jean Dupuis arrived, followed shortly afterwards by Francis Garnier. At that time, at the confluence of the Cua Cam and the Song Tam Bac, there was nothing but a native village with a market, near which a Chinese shipping company had built warehouses. The treaty of 1874 opened Haiphong to commerce and authorized the appointment of a French consul; a mixed customs office, part French and part Annamite, also operated there.

One step leading to another, Haiphong became the port of debarkation and supply for the French expeditionary force. Chinese warehouses were purchased by the military administration; a French company built some new ones beginning in 1886; an arsenal was established in 1888 and then some private shipyards; the Cua Cam was supplied with beacons and illuminated to allow night shipping; European merchants became more and more numerous and they speculated on grounds which were gradually being drained. Haiphong became the great port of Tonkin, notwithstanding all its defects.

The most serious of these is the silting up of the channel. The streams forming the Thai Binh themselves carry very little silt, but large quantities of it are brought in from the Red River via the *Canal des Rapides*. The tide's action forms a double mud bank at the entrance of the Cua Cam which, at the end of the last century, was only four meters deep at high water during the neap-tides. Another entrance to the port had to be found, so the Cua Nam Trieu, northeast of the Cua Cam was used; a route which had been advocated

for several years; it was joined to the Cua Cam by the Dinh Vu cut, 1,400 meters long and, today, 55 meters wide at bottom, which has been in use since 1902. More distant from the Red River and catching less silt, the Cua Nam Trieu sandbar was naturally more convenient; it was believed that a channel could easily be maintained there. In fact, however, only boats drawing five meters or less could cross it at all tides. During the floods, the Red River silts spread into the Cua Nam Trieu via the Dinh Vu canal. As a result, difficult dredging operations across the bar were necessary regularly. Much work was also entailed in maintaining, by means of dikes, sufficient width in the Cua Cam above the cut, as far as the port landing stages. This improvement allowed seven-meter boats to go up to the city at high tide. But there is only one tide a day in the Gulf of Tonkin; steamers and freighters a little too heavily loaded often have to wait for several hours, either outside the bar or in the port. Despite dredging, silt sometimes accumulates in one section or another of the channel, and at such times the number of stranded ships increases and partial unloadings must be effected in Along Bay. Delays induce higher costs, which are added to the already heavy port and pilot dues.

Nevertheless, the progress of colonization in Tonkin and North Annam resulted in increased amounts of trade. The average tonnage of the steamboats entering the port has grown bit by bit. The two large French shipping companies in the Far East—the *Messageries Maritimes* and *Chargeurs Réunis*—each maintain a monthly liner schedule as far as Haiphong. The port is also linked to Cochin China by a supplementary service, which connects at Saigon with the line from Marseille to China and Japan (*Messageries Maritimes*).

In 1937 the incoming and outgoing shipping had an overall weight of 3,315,000 tons burden; 938,000 metric tons of merchandise were loaded, while the merchandise received weighed 339,000. These figures include both foreign and coastwise shipping, the latter still including large number of native and Chinese sailing boats.¹² The principal export commodi-

¹² These are the figures given by the Public Works Office. They are lower than those of the Customs Office which include river shipping.

ties are rice (shipments of which are extremely variable, Tonkin even being obliged to import some occasionally), cement and coal from Dong Trieu. It should be noted that most of the latter commodity is loaded at subsidiary ports opening directly on the Cua Nam Trieu, particularly at Port Redon. Moreover the Hon Gay coal basin has its own specialized ports, Hon Gay and Cam Pha, where most of the coal exported is shipped from Indo-China. Hon Gay and Cam Pha are in constant contact with Haiphong, however, in order to supply fuel to its ships and industries.

It is through Haiphong that the distribution of coal, as well as foreign imported commodities, is carried on in Northern Indo-China. Haiphong, in fact, has the advantage of being the outlet for the waterways which serve the Tonkin delta and part of the hinterland. It likewise owes much to the railway which links it with North Annam and in particular makes it Yunnan's only port.

A large city has thus developed on the banks of the Cua Cam, along which stretch landing stages and docks. The construction of masonry buildings on top of mud which is more than 50 meters deep is difficult. Large buildings stand on thousands of piles and bamboo stakes, driven perpendicularly into the mud. Nevertheless, Haiphong has become the leading industrial city of Tonkin and has about 70,000 inhabitants. It is an outstanding example of human will-power—one might even say, human obstinacy.

As a matter of fact, the growth of Haiphong has been the most serious obstacle to the creation of another port in Tonkin. The most radical solution proposed to meet the difficulties of access to Haiphong is the construction of shipping facilities outside the delta behind the admirable natural shelter provided by the islands in Along Bay. The Port Courbet roadstead at the entrance of which Hon Gay is already located seems the most favorable site. This plan is objected to on the grounds that even if the channel were carefully buoyed and lighted, navigation between the islands in foggy weather would still be difficult. Furthermore, it is impossible to overlook the powerful interests now entrenched in Haiphong. They would never consent to letting that port

become merely a coastwise and river shipping center, especially since the proposed new port could be easily linked by rail directly to Bac Ninh and Hanoi, thus robbing Haiphong of a large part of its regional functions and also the advantages accruing to it from its trade with Yunnan; finally, the proximity of the coal beds would attract the new industries of Tonkin to the more solid ground around the Port Courbet roadstead.

The last mission of experts sent from France in 1930 decided to maintain Haiphong and to undertake the improvement of the port.¹³ An ocean outlet would again be moved further east by utilizing Lach Huyen, which would be joined to Cua Nam Trieu by a new canal across Ha Nam island. In Lach Huyen, the channel would be embanked along its western edge. Apparently this new route could be kept from silting up more cheaply than the former route and, in the course of time, could be deepened right up to the side. It would be very difficult, however, to keep this depth all the way up the Cua Cam as far as the Haiphong docks and so an outer harbor would be built on the Cua Nam Trieu, just below the Dinh Vu canal, which would be wholly dependent on Haiphong and linked to it by a highway and a railroad. This outer harbor, where large ships could dock, would have to be built even if it were decided to continue the old route via the Cua Nam Trieu.

Saigon

From a brief glance at the map, Saigon seems to have even fewer advantages as a seaport than Haiphong. In fact, the city is about 80 kilometers from the sea, on the right bank of the river which bears its name and which flows into the Dong Nai just below the city.

In reality Saigon enjoys more natural advantages than the Tonkinese port. It is well away from the Mekong, whose silts are dumped near Camau Point by ocean currents; the arroyos and canals which connect the Vaicos and the Dong Nai to the mouth of the Mekong do not bring much silt to the Dong

¹³ A. de Rouville, "*L'amélioration des ports maritimes en Indochine française*," Paris, 1931, quoted from *Le Génie Civil*.

Nai; the play of the tides clears the waterways leading to Saigon quite regularly and keeps them deep enough without much costly dredging; the tide itself is more regular than it is on the Tonkin coast and flows up the river twice a day. Fogs are very rare here and landfalls are made easy by two unmistakable landmarks: Poulo Condore Island, which all north-bound ships must sight, and the rounded granite rocks of Cape Saint Jacques at the very entrance to the estuary.

Thus, any day of the year ships drawing as much as nine meters can go up river to Saigon by a twisting channel which, nevertheless, can be easily traversed in four or five hours in either direction. However, inadequate buoys and the presence of shallow stretches force vessels to wait for a favoring tide so that they often have to lie at Cape Saint Jacques or Saigon. It is hoped to make the port accessible to ships drawing ten meters, by cutting back some of the banks which force ships to turn too sharply, by increasing the channel's breadth and improving the buoys and lighting so indispensable for night traffic. Already large liners of the *Messageries Maritimes* call regularly at the port of Saigon and in 1924 the British cruiser, *Hawkins*, 184 meters long, stopped there.

Saigon should therefore be able to handle developing regional trade. The port has already seen considerable progress, paralleling that of Cochin China. Long before the French occupation there was undoubtedly a settlement there. The American, John White, wrote about it in 1819:¹⁴ straw huts stretched out for several kilometers, huddled close together along the river and more and more scattered at a distance from the banks; some of the houses had brick walls with tile roofs; the handsomest buildings were the pagodas and the Catholic church, Christian natives already being numerous; the largest structures were the rice warehouses, that commodity being sold under royal monopoly; a well supplied shipyard built not only large junks but even two European frigates under the supervision of French officers. This lower city was stretched out below an old alluvial plateau where the citadel was located. Despite all this, according to other reports, it was only a collection of rather sordid quarters when Rear Admiral

¹⁴ *Bulletin des Amis du Vieux Hué*, 1937, *op. cit.*, p. 242.

Page, commandant of the expeditionary force, declared the port open to international commerce on February 18, 1860.

Beginning in that year drainage and sanitary works were undertaken in order to permit the construction of new European sections and to extend the native city to land which up to then had been swamp; today the wide boulevards still recall the canal, built by the admirals, which were later filled in. At the present time, Saigon almost touches the Chinese city of Cholon and together they make up a settlement of almost 300,000 inhabitants.

The port itself has grown with the increase in trade, and particularly with the increased rice trade, derived from the larger exportable surpluses produced by bigger cultivated areas. The port extends along the river downstream from the city for about six kilometers: in addition to the landing stages, there is a pier more than a kilometer long with nine mooring berths used by most importing ships; back of the embankments there are storehouses with nearly 30,000 square meters of covered storage space. Buoys and stakes were set in the river to make additional moorings, and are mostly used for loading grain, since they permit the work to be done from both sides of the ship at once. The port of Saigon can thus harbor about forty large and medium-size ships at one time. These facilities will undoubtedly be extended downstream to those parts of the river which have the greatest natural depth and where the banks are firmest. The construction of locks does not seem immediately essential;¹⁵ a more pressing need is the improvement of the careening facilities which at present are inadequate for the repair of large warships and commercial vessels.

More than at Haiphong, the prosperity of the port of Saigon depends on the river navigation facilities. The river port stretches for more than 25 kilometers through Saigon and Cholon, along the Chinese Arroyo on the one hand, and on the other along the *Doublement* and *Derivation* Canals, which are joined by three crosswise canals. It is over these waterways, rather than the railway, that supplies are brought into the great population center and it is by the same routes that the

¹⁵ De Rouville, *op. cit.*, p. 24.

produce of Cochin China and Cambodia—particularly rice and corn—is transported by junks right up to the ships moored in the river. Unfortunately, the canals are often too shallow; vessels are often beached in front of the Cholon factories and can get away only at high tide; ferrying by junks between the factories and the ocean-going ships is not as rapid as it could be. In the plans for improving the Saigon-Cholon harbor, the clearing and deepening of these river ways and the construction of wharfs and waterwings along their banks are the most urgent projects. The extension of the seaport downstream would entail dredging new canals which would assure communications with Cholon, the great go-between for Saigon.

Far ahead of corn, rice leads among Saigon's exports which totalled 2,140,000 tons in 1937 compared to 1,370,000 tons in 1914, while imports were less than 531,000 tons. Although Saigon's total trade is considerably larger than Haiphong's, the discrepancy between imports and exports is even more striking. In 1937 incoming and outgoing vessels totalled 8,274,000 tons burden. This figure also includes coastwise trade, which is less important in the general picture here than it is at Haiphong.

In addition, Saigon is Indo-China's largest passenger port. Europeans, in fact, are more numerous in Cochin China than in any other country of Indo-China, and besides, from here one can easily reach Annam and Tonkin by train or automobile. In addition to the two large shipping companies, there are weekly sailings to Singapore and monthly sailings to Batavia. During the pleasant season of the year, foreign liners often debark tourists who are particularly attracted by the ruins of Angkor, and who avoid the trip up the river by landing and taking the automobile road at Cape St. Jacques.

Secondary Ports

There is no port of any great size between Haiphong and Saigon. This is not because the coast line is inhospitable. The sea is often rough hereabouts; it is whipped by violent northern monsoons in winter and in the fall by typhoons from the east, which bring tempests and floods to the Annam coast. Nevertheless, there are protected harbors between Cape Chon

May, north of Tourane, and Cape Padaran, which could be developed to receive large vessels. But there is little coastal trade here. As often happens there is only a narrow strip of country back of the rocky coast; because of the rugged terrain of Annam, the plains area is restricted to a narrow corridor. It is true that some sections are well populated and produce varied and relatively valuable commodities, but not in sufficient quantities to warrant extensive shipping. Moreover, the development of colonization has had the effect of reducing shipping activity here; rail and road competition are in part responsible for the inactivity of ports once frequented by coastwise shipping and often in direct communication, by junk, with other Far Eastern countries, particularly China and Malaya.

The new highways and the *Transindochinois* have made Haiphong and Saigon the outlets for the northern and southern provinces of Annam. The distance between the two cities (about 1,800 kilometers) is such that central Annam would seem to need an independent port of its own. Furthermore, it seems likely that the anticipated development of mines and plantations in Laos and on the Moi plateaus would be benefited by the establishment of ports located at the terminals of the roads already built, or under construction, leading toward the back country. Further, the south Annam coast appears to be the most suitable in all Indo-China for a large harbor and port of call.

Tourane, about halfway between Saigon and Hanoi, is the only port in Annam where the ships of the French companies which link Cochin China and Tonkin make regular stops. It might well be regarded as a convenient outlet for the provinces of Quang Nam and Quang Ngai, as well as Thua Thien, in which Hué is hidden among dunes and lagoons, and Quang Tri; it could even connect with the wide navigable reaches of the middle Mekong, via the Savannakhet highway. This would require the prompt construction of Colonial Route 10, so that it would reach as far as the Bolovens plateau where coffee plantations are increasing rapidly. Tourane's trade hardly exceeded 180,000 tons in 1936; rice, unrefined sugar, tea and cinnamon are the principal items. Outfitting the port

would entail considerable construction work: the roadstead which curves around the west side of the rocky Tien Cha peninsula, linked to land by a mud bank, is open to the northeastern monsoons; furthermore, the shallow bottom forces ships to anchor at the entrance of the roadstead, far from the present landing stages and, as a result, to trans-ship to junks and barges.

Among the small ports strung out along the Annam coast, two others have claimed the expert's special attention, although they are still very poorly equipped and handle only very small amounts of trade, most of which is coastwise. First is Ben Thuy which is located on the Song Ca River about 20 kilometers from the sea and very near Vinh, a thriving city, starting point of the highways to Thakhek and Luang Prabang, and about 70 kilometers from Tan Ap, where the uncompleted Laos railway and the *Transindochinois* meet. Between Tourane and Cape Padaran, Qui Nhon too has only an open roadstead; dams and dredging works may be warranted here someday when the plantations on the basaltic plateaus of Kontum, Pleiku and Darlac reach full production.

The geographic position of Indo-China, facing the ocean which lies between Malaya, the Netherlands Indies and China, a "balcony" on the ever-busy Pacific which may someday become the center of world commerce, has often been praised, and with reason. But because of the outline of Asia's coast, with the Malacca Peninsula stretching all the way to the equator, Indo-China is off the important shipping routes, particularly the heavily traveled one between Singapore and Hongkong. It is true that ships use the little island of Poulo Condore as a landmark and pass not far from Cape St. Jacques, but the trip up the river to Saigon means several additional hours. There has therefore been a good deal of agitation for building a port of call on the South Annam coast, Indo-China's most easterly territory, where stops could be made with little lost time. Foremost under consideration in this connection are Camranh Bay, in whose deep waters Rozhstvenski's fleet anchored before Tsushima, and the small neighboring town of Nhatrang, already quite a flourishing center and principal town of Khanh Hoa province. Consider-

ations of defense and of strategy alone could justify large-scale undertakings on this coast at present.

AIR COMMUNICATIONS

Placed as it is between India, the Netherlands Indies and China, Indo-China is a port of call in the invisible network of air transport, a role which it is denied in the shipping field. The task of establishing air bases has not been easy; potential landing fields are rare in the back country, which is broken by deep valleys and covered with forests or tall savannah grass; in the coastal plains the country is often flooded or muddy and cut by canals and ditches which crisscross the rice plantations; frequent and violent monsoon winds, fog and haze, heavy rains and, on the east coast, typhoons further complicate the aviator's job. But the protection of radio and meteorology is constantly improving, and reports from the central station at Hanoi are based on information gathered by some fifty meteorological stations.

Landing fields have been steadily improved since 1918. Among the many fields which were first chosen and roughly leveled and marked off, most still remain mere emergency fields. Since 1928 attention has been concentrated on the development of air bases on the route served by *Air France*, flying first between Hanoi and Saigon, and later to Vientiane, Tourane, Huê and Vinh.

Air service to France now on a weekly basis has been provided by *Air France* since 1931. On a planisphere the 14,000 kilometer air route from Marseille to Saigon seems almost straight, cutting across either the north or south bank of the Mediterranean, through Syria, over the north shore of the Persian Gulf, the Ganges plain in India and Bangkok; from Saigon to Hanoi the planes fly either along the coast or through the Mekong valley, depending on the weather. The length of the trip between France and Indo-China's capital, which takes about a month by boat, is thus cut to seven days.¹⁶

¹⁶ Early in 1938, the *Air France* planes flew straight from Bangkok via Vientiane to Hanoi and the Bangkok-Saigon route was a mere branch line. After July 1938 French planes ceased flying the Bangkok-Vientiane-Hanoi route. As we send this to press we are informed that, beginning on July 1, a second weekly schedule will connect Saigon and Hanoi via

Since August 1938, Saigon has had direct connections with Singapore, Palembang and Batavia, through facilities of the Dutch company, K.N.I.L.M. In addition to furnishing these regular services, air transport plays an important role in carrying the sick to hospitals.

Air France, plying the long route between Marseille and Hanoi, extended its service to Hongkong in 1938. Imperial Airways also stops at Hanoi en route from Penang to Hongkong. In addition the tri-motor planes of the *Eurasia Company* (a German-Chinese affiliate of *Deutsche Lufthansa*) provide a weekly service between Hanoi and Yunnanfu, a trip which is easily flown in less than three hours. Through air transport, Hanoi thus becomes one of the main gates to southern China; the Gia Lam airport which was only opened in 1936 has already had to be enlarged.¹⁷

the Mekong valley and Vientiane, the first one following along the coast via Tourane. In addition the Aerial Transport Company of Siam has just inaugurated a Bangkok-Vientiane flight. Thus Laos is again provided with regular airmail service. The above information has of course been rendered out of date by events since the outbreak of war in 1939.—*Editor.*

¹⁷ During 1938, 760 planes landed and took off at the Gia Lam airport at Hanoi. They carried 1,814 passengers and 73,955 kilograms of mail.

Preliminary flights were made in March 1939 over the route from Chungking to Hanoi, where a regular service will be provided by the China National Aviation Corporation.

CHAPTER III

ECONOMIC THEORIES

In 1887, when the Indo-Chinese Union was established by decree, French economic theories had just been transformed. Cochin China had flourished under the liberal regime inaugurated by the Anglo-French commercial treaty of 1860, which had been extended to the French colonies by a number of laws and senatorial decrees. Almost all Cochin China's products entered the mother country duty free, and most commodities, whether French or foreign in origin, entered the colony without payment of import tax. As a result, the Colonial Pact, toward which the Restoration and July Monarchy had seemed to return, appeared finally doomed.

This was the moment when French heavy industry was getting a healthy head start; at the same time, too, colonial intervention was becoming increasingly common. Industrialists, however, were worried; they feared overproduction and they wanted new markets. A close tariff union binding the colonies to the mother country seemed to offer a hopeful solution to these problems. The trend toward protectionism was reinforced by the unpopularity of the colonial campaigns, especially the costs piled up by the Tonkin expedition, starting in 1882. No one has yet told the story of this growth in public feeling, nor of the way in which capitalist groups influenced the development of French operations in Indo-China. The story will surely be a strange one but it is still too soon to write it; moreover, it is unlikely that full details about it will ever become available.

"The colony is expensive, at least it should pay for itself"—the rather naive sincerity of that frankly proclaimed credo is easily proved by a few quotations:

"You must reinforce the important progress lately achieved at Rouen, at Elbeuf, in the Vosges, in the Nord and in all the

industrial centers of France . . .," Mr. Waddington told the Chamber in 1887.

"We have given up a great deal for the colonies; for 20 years we have poured out our soldiers' blood and spent our taxpayers' money. Such sacrifices should not go unrewarded nor should the rewards be reaped only by the Germans, the English, and the Chinese. . . ."¹

"I belong to the school of thought," said Étienne in 1891, "which demands that the colonies be reserved as an exclusively French market."

The most typical protagonist, the most ardent advocate of this point of view was Méline, the Director of the Association of French Industry and Agriculture. "Within a sound colonial system," he declared, "colonial production must be limited to supplying the mother country with raw materials or with non-competitive products. If colonial production should step out of this field and offer competition ruinous to our own production then it would become a dangerous opponent."²

This notion was embodied in the law of January 11, 1892, passed by large majorities in both Houses, which declared Indo-China an "assimilated" colony. It provided that the products of the mother country could enter the colony duty free while those of other countries were subject to the same tariffs as in France. In return, as a general rule, Indo-Chinese produce could be imported duty free into France.

The desire to protect French industry, which spurred the legislators, was even more clearly expressed in practice in the interpretation of the law. Doubtless, the great differences among the colonies was appreciated, as was the danger of endowing them with uniform customs systems. "It would never enter any reasonable person's head," wrote Jules Ferry, "to impose on the French colonies, quite unchanged, the whole framework of metropolitan tariffs, without taking

¹L. Ferry, *Le régime douanier de l'Indochine*, Paris, 1912, p. 28.

²Quoted in J. Harmand, *Domination et Colonisation*, 1910, p. 311. In 1910, in the course of his campaign against colonial industry, Méline proposed that Parliament establish colonial compensation licenses which would be required of any industry set up in the colonies to compete with a similar industry in France. L. Ferry, *op. cit.*, p. 124. Similar ambitions have been expressed recently by French industrial associations.

account of distances or climates or the infinite variety of a faraway realm, located in all the corners of the world and in all the habitable latitudes."³ The law provided for some flexibility but this, according to some critics, could result in the establishment of what amounted to special colonial tariffs. Neither Indo-China nor any of the other colonies, however, was able to adjust the tariff as it pleased. Requested modifications of the act's application, which had to be embodied in ministerial decrees, were often turned down by the home government. Many Chinese and Japanese commodities used by the Indo-Chinese natives, however, were only subjected to moderate duty, although later these tariffs were raised. In general, the increase in taxes paralleled what was happening at home without any attempt to consider Indo-China's particular position.

In practice there was little customs' reciprocity between colony and home. On entering France some Indo-Chinese commodities had to compete with foreign products which had entered either duty free or only on the payment of extremely low tariffs. Indo-Chinese coffee, tea and pepper paid tariff rates which were only slightly lower than those paid by foreign products and which, moreover, were subject to frequent alteration.

As a matter of fact, economic regulation in the pre-war period was rather disorganized. Although home industries had great influence, they were certainly not predominant. In making a complete picture of the situation, the financial demands of the colonial administration must not be neglected. Customs' revenues formed a large share of the general colonial budget, and tariff reductions were desired only to the extent that they permitted the entrance of necessary foreign commodities which were otherwise so heavily taxed as to be virtually excluded. On the other hand, some industries had been established within Indo-China and French capital was timidly entering the colony, with consequent demands for protection against competition from neighboring countries.

³ L. Ferry, *op. cit.*, p. 72. See the 1897 Report of the Lyons Chamber of Commerce in Régismanset, *Questions Coloniales*, 2nd series, Paris, 1923, Vol. II, p. 98 ff.

Finally, the native standard of living was still so low that it required constant tariff readjustments on consumer goods.

Plans for reform began to appear, especially after 1906. A variety of ideas and interests were aired in the reports, deliberations and resolutions of various groups and organizations.⁴ The Congresses of Marseille (1906) and of Bordeaux (1907) claimed that Indo-China, like any other colony, should be enabled to meet the needs imposed by its geographic position. Indo-China's administrative services went even further—demanding quasi-autonomy in customs' matters. There was disagreement among the colony's Chambers of Commerce, some demanding an individual regime with greater economic liberty, while others called for stringent enforcement of the principle of "assimilation" with the mother country. Just before the war, on May 19, 1913, the Association of French Industry and Agriculture passed a resolution demanding that the colonies again increase duties on foreign products and that alterations in the French tariff be granted not by decree but only by law. Obviously no coherent economic doctrine emerges from all these contradictory demands.

One of the effects of the War was to help strengthen the bonds uniting the French Empire. Not only did Indo-China send troops to France, but she also helped feed the mother country. In turn, the French government encouraged the production of supplies essential to national defense. It was pointed out that thousands of millions of francs, which had been lost in investments abroad, might, had they been placed in the colonies, have built up flourishing plantations and other valuable developments.

A head start was finally made in 1924 when Indo-China, like the rest of the world, experienced the beginning of what looked like permanent prosperity. Many companies were organized, private capital flowed into the colony in an unprecedented stream, Indo-Chinese securities found their way into the safes of stockholders great and small. Technical studies, novels, advertisements and newsreels made the man on the street and at home familiar with that Far Eastern land already transformed by French diligence. At the Vin-

⁴L. Ferry, *op. cit.*, p. 129.

cennes Exposition in 1931 Indo-China's was the most popular of the colonial exhibits, sheltering under its graceful and imposing temples and palaces the thousand products of its land and industries. In 1928 a law was enacted which many have described as a thorough remodelling of the customs system set up in 1892. In fact, it gave Indo-China a regular method of adapting its tariffs to meet colonial needs. While formulating the principle of "assimilation," the act of 1892 also provided for modifications but the methods by which modifications were secured involved long delay and many complications with the result that the home government's inertia often smothered the claims of local Indo-Chinese groups. The new act provided that the demands of such groups would be considered as tacitly approved unless the home government came to a decision within a very short time. It was anticipated that these provisions would be enormously useful to the colony.

As a matter of fact, however, the Act of 1928 was to lead to the enforcement of even harsher protectionism. The demands of European interests in Indo-China surpassed even those expressed at home. Their requests for changes in custom duties, which were usually granted, led to the establishment of a new tariff levying higher rates on foreign commodities than most of those in force at home. Apparently Indo-China wanted to be isolated from its neighbors in order to support both the industries of the mother country and the industrial, commercial and agricultural businesses which had grown up on its own soil. Up to this time a special tariff, set up bit by bit through the Act of 1892 and the adjustments made thereto, had allowed many Chinese and Japanese articles to enter Indo-China. That tariff was now abolished and those commodities were subjected to the ordinary tariff rates.

Unfortunately the new customs law went into effect at the moment the depression began. Sooner or later and with more or less impetus, the depression engendered extremely autarchic economic systems either on a national basis or, in the case of great colonizing nations such as France, imperial in scale. Especially after 1931, laws and decrees inaugurating bonuses, compensation funds and quotas encouraged colonial produc-

tion and eased its access to the home market. The entrance of Indo-Chinese rice, tea and corn into France was particularly encouraged by such means and their distribution enhanced by large advertising campaigns. Recently even Tonkinese coal found a market in France.

Confirmed by the Imperial Economic Conference of 1934-1935, the policy of protectionism proportionately increased the trade between France and Indo-China. Previously resulting in an almost constant favorable balance of trade for France, today this trade tips the scale in Indo-China's favor.

One of the chief rapporteurs of the Imperial Economic Conference nevertheless urged the necessity of insuring the "vital needs" of each member of the Empire.⁵ According to him, a protectionist policy should, as far as humanly possible, avoid transforming the French imperial economy into a closed economy. For instance, French West Africa, French Equatorial Africa and Madagascar would all benefit from increased trade with British South Africa, and New Caledonia and the New Hebrides should demand commercial treaties with Australia and New Zealand. More than ever, it is dangerous to try to separate French Indo-China from its geographic setting. The character of its agricultural and industrial products and the needs and customs of its natives make easy access to the markets of the Far East essential.

Throughout this brief outline of the economic doctrines (perhaps a somewhat pretentious term) which have guided the economic growth of Indo-China to some extent, two opposing trends have been clearly apparent. According to some, Indo-China's development should be carefully restricted in order to avoid hindering the mother country; these dread possible competition as they would a terrible revolution. Others, however, believe that the distant colony should be given a good deal of freedom, if not an absolutely free rein; its development would ultimately be encouraged by such a canny policy and, as a result, the mother country itself would benefit. Many writers emphasize the former trend, for it seems the

⁵ *Conférence économique de la France métropolitaine et d'outre-mer*, (December 1934-April 1935), Paris, 1935, Vol. I, p. 33 (Report by R. Théry).

stronger and more clearly embodied both in official statements and in their application.

The second trend, however, is never lost to sight and must constantly be taken into account. Faced with the principle of "assimilation"—more or less modified in practice—it replies with a demand for more or less qualified autonomy. Is this only an argument about words? Obviously every gradation between the two extremes can be obtained. Nevertheless, this desire for independence or decentralization at the very least is evidenced in the claim for a right, the exercise of which might have important consequences—Indo-China's right to govern its relations with neighboring states by means of special treaties. Here Indo-China cites the example of the British Empire.

Politics and economics both reinforce this ambition to make Indo-China a "relay" point for French interests and policies in the Far East. The word is fashionable today, but the idea was put forward a long time ago, for instance by J. Harmand, that energetic soul. Cochin China and Tonkin were envisaged as markets for the Chinese provinces visited in 1897 by the Lyonnaise Mission. The active and imaginative Governor General Doumer multiplied and strengthened Indo-China's direct contacts with its neighbors: he visited the King of Thailand at Bangkok; he travelled on horseback through part of Yunnan; in September 1898 Sou, the Chinese Marshal, was present at the dedication of the bridge over the Red River—"destined to make Tonkin's capital the great entrepôt for China's southern provinces," thanks to the Langson and Yunnanfu railway lines which it was hoped to lengthen subsequently. By subsidies and other aids the government of Indo-China participated in setting up French schools, hospitals and consulates throughout the Far East.

It was recognized at home that the colony might suffer seriously from the automatic application in Indo-China of the provisions of commercial accords concluded between the mother country and foreign powers and that, therefore, the colony ought to have the right to alter their provisions to suit local needs. The first French treaty which specifically excluded Indo-China from its terms was the Treaty of Commerce and

Navigation signed by Japan and France in 1911. Since Japan had refused to grant preferences to Indo-Chinese rice that colony, and that colony alone within the Empire, was excluded from the treaty provisions.

After the war this precedent was often followed. The commercial agreements with Esthonia, Poland, Spain and Italy made in 1922 all included special clauses relative to Indo-China. The French-Thai treaty of friendship, commerce and navigation signed at Paris in February 1925, reserved the rights of Indo-China; and the agreement governing Indo-China's relations with her western neighbor was signed at Bangkok a little later, in August 1925, and was promulgated as a decree in September. The numerous questions raised by the delimitation of the Indo-Chinese-Thai frontier and the application of the new regime were made subject to the High Commission of the Mekong which consisted of delegates from both countries. The latest Franco-Thai treaty, signed in November 1937, maintained that Commission and was followed by a commercial and customs agreement particularly referring to Indo-China.

In recent years, relations with China and Japan have awakened the home country to Indo-China's special rights in this field. By the treaty of Nanking (December 1928) France granted China the minimum tariff on silk goods and colonial produce, but a supplementary letter specified that the treaty did not apply to Indo-China whose position would be governed by a later agreement. An important new step was the presence at the Nanking discussions of Indo-Chinese experts sent, in addition to the French minister, to represent the colony itself and to take part in reaching the new agreements. The special treaty regarding Indo-China was signed in Nanking in May 1930 but its ratification was delayed until the complete abrogation of the surtaxes (*likins*) imposed by the provincial governments of Southern China. Not until 1935 did this treaty take effect.

Anticipated since pre-war days, a special⁶ agreement between

⁶ For Indo-China's relations with Japan, see R. Lévy, *Les conséquences du développement économique du Japon pour l'Empire française*, Paris, 1937.

and particularly for trade with more distant places, was of silver.

Mexican dollars (or piastres) circulated throughout the Far East; this wide distribution of her coinage provided Mexico with a convenient method of exporting the product of her silver mines. In addition to the Mexican dollars which had only just acquired their fame, there was some circulation of Dutch, British and Spanish silver pieces.

At the time of the French conquest there was no Indo-Chinese monetary system as we understand the term today, with monetary units and their multiples and submultiples. Far from having a fixed rate of exchange, the different coins rose and fell in relative value as conditions changed. The fluctuations of this rate of exchange were largely determined by the commercial value of the component metals. In a word, coins and ingots were bartered in the same way as merchandise—according to kind and weight.

Under such circumstances, Indo-China had neither the advantages nor the disadvantages of a monetary system. Disregarding the relative abundance or scarcity of specie which, after all, were merely expressions of wealth or poverty, it can be said that Indo-China had not experienced currency problems or their economic sequels. Furthermore, it should be noted that private individuals could coin zinc sapeks, thus meeting a scarcity in the means of trade as they would meet a scarcity of nails or fishing nets—by manufacturing them. On the other hand, the sapek had a number of disadvantages, the chief ones being brittleness and bulk. As long as it was only used for trade by the natives of the interior they got along with it fairly well. But matters became more complicated when, in the wake of the French army and government officials, the piastre came into use in the hinterland. From then on, contact between the two currencies multiplied and the economy became more sensitive to variations in their rate of exchange.

After some unimportant fluctuations, toward the end of the century there occurred a rise in the sapek's exchange rate relative to the piastre, as a result of a scarcity of dong and the

depreciation of silver. The Mexican piastre fell from a value of 8 strings in 1883 to 6 in 1898.

This rise of the sapek profoundly affected Indo-China's economy. It entailed numerous disputes over the payment of salaries, some of which were stipulated in piastres and paid in strings, as well as an increase in the cost of living for the natives who sold their rice at a price fixed in piastres.

In 1902 a Commission was set up to study the best solution of these problems. After dropping a plan to coin zinc pieces of one or six sapeks because of prohibitive costs, the Commission decided to propose the creation of zinc pieces worth 1/600th of a piastre and exchangeable for 5 old sapeks. In this way the Commission hoped it had solved two problems at once; while satisfying the native by giving him a means of exchange which fitted his needs, it linked the old sapek to the piastre and stabilized the former.

The pieces were first coined in 1904 and were made legal tender for settling accounts incurred in piastres. Enemies of all monetary innovation, the natives were opposed to the new currency. As a matter of fact their attitude, though doubtless unreasonable, proved wise in the end. Stabilizing the sapek by linking it to a stable piastre would have been desirable and probably feasible. But to link it to a piastre whose fate was more or less bound up with that of silver was paradoxical and in 1914 the five-sapek coin was withdrawn by decree.

Even before the war, however, conditions were changing. The piastre and the cent were then widely current in Cochin China and Cambodia and since the war were being used increasingly in the other countries of the Union. The problem of stabilizing the zinc sapek in relation to the silver piastre—insoluble like most problems of bimetallic currencies—was wiped out when the sapek was dethroned in domestic trade by the piastre and its fractions.

During the first years of the French occupation the fluctuations of the piastre-sapek exchange rate at home had had their counterpart in the great stability of Indo-Chinese exchange on the foreign market. As a matter of fact, having no silver money of her own Indo-China used a variety of foreign

pieces, similar in weight and standards, under the generic name of piastre. The weights of the most common were:

	<i>Weights in fine silver</i>
Spanish Piastre	24.44 grams
Mexican Piastre	24.44 grams
American Trade Dollar	24.49 grams
British Dollar	24.26 grams

In spite of their difference in weight all these coins circulated simultaneously because they were accepted for their intrinsic value. Nevertheless, the first currency crisis occurred as early as 1862 when the Governor of Cochin China decreed that, regardless of its real weight, the Mexican dollar should be uniformly valued at 26.94 grams of 90 per cent standard silver, or 24.24 grams of fine silver. As a result all the good coins or "clean dollars" were withdrawn from circulation by speculators and replaced by so-called "chopped dollars." A tidy profit could be made out of the legal exchange rate of the Mexican piastre in Indo-China by bartering "chopped dollars" for an equal number of "clean dollars" in Saigon and then reselling the latter abroad, by weight, in exchange for a larger number of "chopped dollars."

The colony's specie depreciated rapidly. This was followed by a drop in the rate of exchange, which injured trade. Within three months the decree was repealed but this proved insufficient and in 1863 the Governor had to prohibit the entry of "chopped dollars" into the colony. From the Government's point of view this was to be but the first step toward complete elimination of foreign currency from Indo-China. The Administration hoped to "acclimatize" French currency in the new colony as had been done in the old ones and in 1864, with this in view, the 5 franc écu was legally valued at 90/100 of a piastre. This value, however, was lower than the coin's intrinsic worth—about 93/100 of a piastre. When the écus got into the public's hands they therefore began to disappear from circulation, with the result that the Governor promptly had to give up the scheme. A further experiment in 1878 having failed, the impossibility of introducing French currency into Indo-China was finally admitted and it was

decided to coin a trade dollar, or piastre, analogous to the foreign piastres then circulating, in order that a reduction in the colony's specie would not result in a rush on the reserves of the *Banque d'Émission*.

First coined in 1885, the French trade piastre weighed 27.215 grams of 900/1000 standard silver. Although it contained a little more fine metal than the Mexican dollar it was given the same exchange rate as the latter. The effects of this assimilation were soon apparent, particularly since the Japanese yen, also lighter in weight than the piastre, was exchanged at par with it on the free market. Gresham's law that "bad money drives out good" had full play and, in order to avoid the disappearance of the French piastre from circulation, the Governor had to reduce the weight of the new coin to 27 grams. Coining, even on behalf of the Bank, required the authorization of the colonial Government. Finally, in 1898, a 3 per cent duty was imposed on the export of specie of every kind.

Despite the restrictions on coinage, it can be said with accuracy that the colony was now on the silver standard. In fact, the possibility of importing or exporting Mexican piastres according to need maintained the rate of exchange within the limits of the silver-points, only slightly increased by the export tax. From now on, in fact, the currency problems with which Indo-China was to deal were inherent in the silver standard itself. Especially important in this regard was the depreciation in the value of silver between 1870 and 1914 which seriously affected Indo-China's trade relations with the ever-widening circle of gold-standard countries surrounding her.

The continued depreciation of the white metal forced many countries to give up the silver standard in favor of gold monometallism: British India was the first, in 1893, at least so far as its relations with foreign countries were concerned; then came Japan in 1897, Thailand in 1902 and the Philippines the following year. France, like Indo-China, was affected by the depreciation of silver, though not to quite the same extent. French exporters and Indo-Chinese importers jointly complained to the government about their unfavorable position. The administration was already concerned with this problem because of the links between the Indo-Chinese and

French budgets, the most important being the colony's annual payment of a portion of the French military occupation costs. Moreover, French capital investments and the profitable development of Indo-China were both hampered by a depreciation in the colonial currency.

In 1902, therefore, the Ministry of Colonies found it necessary to appoint a Commission to examine Indo-China's currency problem and to draft the ultimate solutions which should be applied. Following the example of Great Britain in India, the Commission concluded that it would be wise to aim at stabilizing the piastre's value in relation to gold. As a first step it recommended severing the link between the French piastre and silver. The recommendations of the Commission were followed by the government, the 3 per cent duty on the export of Mexican piastres was abolished and their import prohibited. Indo-China's silver mono-metallism thus became as crippled as had French bi-metallism in former years. The export of Mexican piastres was still allowed although their import was forbidden; as a result they gradually disappeared from circulation. The export of French piastres was likewise left unhindered, but their coinage was regulated and subject to authorization by the Government General.

Two years later, in fact, in reply to the demands for specie resulting from the Russo-Japanese war, the export of French piastres was also prohibited and Indo-China's currency, freed from the check of silver-points on entering or leaving the country, came under the so-called "closed vase" regime. Under this regime the piastre's rate of exchange permitted neither entry nor exit point and could, theoretically, oscillate without limit in accordance with the balance of trade. When the latter was favorable and Indo-Chinese debtors were unable to secure piastres in exchange for metal, the Indo-Chinese currency exchange rate rose above its intrinsic value under the pressure of strong demand. Vice versa, when there was an unfavorable balance of trade with foreign countries—a very unusual circumstance—the piastre's rate of exchange fell below par of the metal, since the currency system did not permit the settlement of such deficits by the export of specie.

This arrangement was bound to incur sharp criticism, all

the more so as the depreciation of silver was accelerated by the increasing number of neighboring countries which were tying their currencies to gold. The question was studied in 1905 by a local commission and in 1906 by an inter-ministerial commission but, faced with their contradictory recommendations, the Government General preferred to stick to the *status quo*. During the war, however, by a piece of good luck solely due to its currency system, Indo-China's economic balance was not seriously shaken. The exchange rate of the piastre rose slowly and steadily, pushed by the steady rise in the value of silver; in this way, the general rise in prices in the countries which were not on the silver standard was compensated for in Indo-China by the parallel rise of the piastre.

With the end of hostilities and the return to freedom of trade, however, a double crisis involving both specie and exchange struck the colony. Whereas paper currency kept on increasing as a result of general business expansion,³ the Exchange Commission in Paris refused to authorize, under conditions which it deemed unfavorable, the purchases of silver necessary to cover the mortgages of the Institut d'Émission. In order to improve a condition which threatened the country's prosperity, the Government General decided to free the export of rice which had been restricted to France during the war. At the same time, by the decree of December 17, 1919, exporters were required to turn over to the Bank of Indo-China, for the Administrator's account, one fifth of the gold or silver value of their exports to foreign countries, in exchange for which they would receive banknotes.

Although these steps did provide the badly needed metal coverage for the issuance of paper money they were no more than a palliative and never could have prevented the issue of fiat currency. However, they were interpreted as a first step toward stabilizing the piastre on a gold basis and therefore aroused harsh criticism. The Government General backed down before this opposition, repealed the decree in question on December 30 and concluded the convention of January 20, 1920, with the Bank of Indo-China.

³ Paper currency totalled 31 million piastres, or 77 million francs, in 1913; by 1919 it had grown to 49 million piastres, or 450 million francs.

This convention marks the third phase in the evolution of the colony's currency. It established *fiat currency* and made the Bank of Indo-China the Government General's issuing agent. According to the terms of the convention it was up to the Government General to determine the limit of issue and the piastre's exchange rate in terms of francs, and, on the other hand, to take charge of all exchange operations which were not limited by the normal interplay of purchase and sale to the public. The piastre became, if not a managed, at least a floating currency with a tendency toward separation from silver. This was not without serious danger, for a wilfully exaggerated depreciation could not have failed to provoke clandestine export of the coins in circulation, a rise in domestic prices and all the other ills which follow from thoughtless currency manipulations.

These risks were not forgotten by the administration which appointed a Commission in August 1920 to study yet again the question of currency reform. The Commission came to the conclusion that Indo-China would do well to adopt the gold standard and, in view of general increases in world prices, to stabilize the piastre at a level high enough to spare the colony a readjustment of domestic prices. By the time these recommendations were made, however, early in 1921, they were already out of date because of recent developments in Indo-Chinese trade and the world scene.

In the opinion of the Government General return to a sound currency was a most urgent matter and, since it would be impracticable to wait for the Commission to make new recommendations, it was decided to deal separately with the abrogation of *fiat currency* and with monetary reform.

A convention concluded on January 27, 1921, with the Institut d'Émission outlined the conditions for a return to silver currency and once again the problem of stabilizing the piastre on a gold basis remained unsolved. Once again subject to the "closed vase" regime, the piastre oscillated for almost ten years around parity level, in accordance with the favorable or unfavorable balance of trade. Characteristic of this fourth period were the steady decline in the price of silver, an influx of capital from France and great economic prosperity.

Standard silver, which was worth 42½d. an ounce in London at the beginning of 1921, had dropped to half that value, or 21¼d., at the end of 1929. Indo-China's purchasing power was thereby reduced to below its pre-war level, and a change of standard or at least the stabilization of the piastre became essential if the colony's impoverishment was to be checked.

The position became all the more serious as French capital invested in Indo-China melted away while the piastre's rate of exchange in francs was crumbling. From the unusual peak rate of 27 francs which it had reached in 1926 the piastre had fallen to 12.8 francs in 1927 and to less than 10 francs at the end of 1929.

Finally Indo-China's equipment in machines and tools was still far from complete and it was wise to anticipate eventual substantial loans to fill this need, loans which could only be raised in such centers as Paris, London or New York. Obviously, it would have been unwise to issue bonds payable in gold when the colony's budget resources were in piastres and the purchasing power of the piastre, linked as it was to silver, seemed on the way to exhaustion.

Moreover, just before this reform was carried out, the Indo-Chinese piastre, together with the Chinese and Hongkong dollars and such unimportant currencies as the Persian kran, the Kabul piastre and the Abyssinian dollar, were the only currencies still affected by the fluctuations of silver, the Philippines, the Straits Settlements and Thailand having all adopted the gold standard.

When, however, in agreement with the Government General of Indo-China, the Ministry of Colonies decided to go ahead with the stabilization of the piastre, the silver market was very disturbed and at the outset the job was not easy nor was its outcome sure. The farsightedness of the Institut d'Émission and some lucky accidents made it possible to stabilize the piastre *de facto* at 10 francs on January 10, 1930. Three and a half months later the change took definite form with the decree of May 31, 1930, which legally defined the new currency and established rules regarding its convertibility to gold, the amount of reserve funds and the circulation of paper and metal currency.

The value of the piastre, the official monetary unit of the Indo-Chinese Union, was fixed at 655 milligrams of gold (900/1000 fine) equivalent to 10 francs as defined by the law of June 25, 1928. In fact, the piastre's value oscillated about 3 per cent in order to take account of the costs entailed in the transport of gold back and forth between Paris and Saigon.

The trade piastre was withdrawn from circulation on December 31, 1931, and today the notes of the Bank of Indo-China are the normal means of exchange within the countries of the Union. At first the natives were undoubtedly annoyed at the appearance of a currency unsuited to a country where climate, insects and the impermanence of buildings all render the preservation of paper currency very difficult. But, since the Institut d'Émission has a very liberal policy with regard to replacing damaged notes, the natives got used to the new state of affairs. Moreover, it has been proved that the 50 cent pieces are used for hoarding and thus satisfy the native's great preference for silver.

This short historic outline shows that the currency manipulations which took place before and after the piastre was tied to gold were carried out in difficult circumstances without seriously disturbing the colony's economic and social life. Nevertheless, the stabilization of the piastre at a fixed rate inevitably harmed certain groups and favored others neither more nor less worthy of consideration.

At first, the Government was accused of stepping in too late and, when at long last it had done so, of having stabilized the piastre too low. The piastre's relative appreciation since the war, resulting from a series of very successful export campaigns, was a bad omen for the new currency. Exporters whose businesses were prosperous were inclined to accept a high stabilization level which, by increasing the native's purchasing power, would have facilitated the entry of foreign goods and satisfied the importers. Attention was called to the fact that since the piastre was worth 2.50 gold francs in 1914, it should be stabilized at about 12.50 francs in order to retain approximately its pre-war purchasing power. On the other hand, stabilization at a low rate directly affected the French colonists and officials who were paid in piastres and sent their savings

home in francs at a less satisfactory rate than formerly. Similarly, companies whose capital and dividends were stipulated in gold, also suffered more or less serious losses. Finally, both an increase in the cost of living and a readjustment of salaries were feared in Indo-China.

As the depression deepened and inevitably spread to Indo-China, however, critics did not hesitate to change their line, but without losing any of their virulence. None accused the tying of the piastre to gold of being the principal cause of the ills disturbing Indo-China's economy, but they did blame the 10-franc piastre, yesterday too cheap and too expensive today, for having occasioned a decrease in rice exports, aggravated the unfavorable trade balance and the budget deficit and caused the bankruptcy of many businesses.

As a matter of fact, their arguments failed to distinguish between the almost simultaneous results of the stabilization of the piastre, the accelerated depreciation of silver and the general decrease in world prices, the latter appearing in Indo-China in the shape of sluggish markets and sales of rice below cost.

In spite of the obvious contradictions inherent in the criticisms appearing in the Indo-Chinese press, the Government was alarmed by these complaints which grew more urgent as the depression deepened. On June 16, 1933, an interministerial Commission was appointed "to examine the repercussions of the fluctuations of silver on the economic situation in the Far East and particularly in Indo-China."

The Commission faced three devaluation theories. The first advocated devaluation pure and simple, with a reduction in the piastre's gold content. The second urged devaluation while maintaining a relation between the piastre and gold at a rate to be periodically revised. Backed by the greatest number of adherents, the third theory demanded a return to the silver standard. Advocates of the *status quo*, however, were able to oppose the devaluationist arguments so convincingly that the Commission adopted their point of view in its report, which was not submitted to the Ministry of Colonies until June 1934.

The controversy stopped only when, on September 30, 1936,

the French monetary crisis forced the Government to bring the franc in line. On October 2 a decree suspended the application of Articles 1 and 2 of the decree of May 31, 1930, which endowed Indo-China with a gold currency. Until the new gold content of the piastre shall be fixed, the Bank of Indo-China guarantees the convertibility of its notes into French francs on the basis of 10 francs for one Indo-Chinese piastre.

This provisional arrangement is still in force, but not without serious inconveniences. Freezing the exchange rate of the piastre at 10 francs does not allow the Institut d'Émission, in its actions on the money market, to take proper account of the seasonal character of Indo-China's trade with foreign countries nor of the cycles of good, average and bad harvests which determine to a large degree the size and character of Indo-China's balance of trade.

When, under the so-called "closed vase" regime, fluctuations on the silver market affected the Indo-Chinese exchange rate, the Institut d'Émission could put a brake on the resulting variations in the metal's value and thus play a stabilizing role by raising or lowering the piastre above or below its intrinsic value. Similarly, when the gold piastre varied in value, as we have seen, in response to changes in the price of gold on entering or leaving the country—a fluctuation of about 3 per cent—the Institut d'Émission was able to adjust the exchange level to correspond with trade conditions within the colony. As a matter of fact, a large favorable balance of trade brought in its wake a gradual rise in the piastre's exchange rate which did not noticeably impede the export of the colony's products and, on the other hand, facilitated imports from France and from abroad. In a period of languishing trade, on the contrary, the piastre lost value, piastre prices of imported products rose and the volume of imports dropped in order to adjust itself to the purchasing power of the population.

In other words, the Indo-Chinese currency problem has several contradictory aspects. On the economic plane, there are conflicts between the importers who want an expensive piastre and the exporters who want a cheap one. This opposition of interests is irreducible and the Administration will

have to lean sometimes to one side and sometimes to the other, in accordance with the country's economic position.

In the sociological field, a weak piastre instigates a rise in prices which is especially injurious to the laboring classes. The unrest which results from such a situation passes off if remedial measures are not too long delayed, but serious consequences may result if the disparity between the rising cost of living and salary levels is not promptly reabsorbed. On the other hand, a cheap piastre favors foreign capital investment and lightens the financial burdens assumed by business in times of crisis.

Lastly, in the budgetary field, an expensive piastre lessens the taxpayer's burden for that portion of the colony's expenses which are paid in francs, while a cheap piastre increases receipts from customs' duties and indirect taxes.

Aiming merely at a rapid survey of the complexity of the Indo-Chinese currency problem, these considerations are sufficient to prove that it can have no definite solution but that flexibility is its dominant characteristic.⁴

PUBLIC FINANCES

In the field of public finance, the number of separate government budgets reflects the heterogeneous character of the Indo-Chinese Union, both politically and geographically. Each of the five countries—Tonkin, Annam, Cochín China, Cambodia and Laos—which make up the Indo-Chinese Union has an independent budget. These are administered individually in accordance with the provisions of the several treaties, although subsequent agreements have transferred certain financial powers from the native authorities to the Governor General or Residents Superior, with the result that differences between the local budget systems are narrowing down.

Moreover, the five national budgets are subsidiary to a general budget from which three subsidiary budgets for rail-

⁴Already prevalent in Annamite regions at the time of the French intervention, the use of metal coins in trade among the natives has increased more and more at the expense of the barter system. Even today, however, in certain remote areas barter is in regular use for transactions between Annamite peddlers and the highlanders, especially in the Moi country.

roads, public works, and Kwang Chow-wan territory were separated rather recently.

In passing it might be mentioned that the general budget, created in 1887 when the Government General was established in Indo-China, was abolished the following year in order to curtail the Government's power. It was not reestablished until 1897.

The Act of April 13, 1900, established the principle of Indo-China's financial autonomy from the mother country. In other words, both general and local budgets are entirely independent of the budget of France itself. However, the expenses incurred by the mother country on behalf of Indo-China's defense and for other services rendered in the colony are reimbursed by an annual quota paid to the French budget by the general colonial budget. In addition, Indo-China benefits in part from the funds appropriated by Parliament in order to carry out large projects for the colony's economic development. This is the extent to which the finances of colony and mother country are interdependent.

The respective prerogatives in budget matters of the Governor General and the Residents Superior are derived from a decree dated 1899 which was revised in 1911 and later completed.

Expenditures

According to the several laws in force, the general budget provides for expenditures of common interest to all Indo-China. Under this heading it pays the interest on the public debt, the colony's share of defense expenditures and the costs of the central administration—in other words, the main administrative and judiciary services. In normal times it finances the larger part of the public works program. All other expenditures are borne locally.

As a matter of fact, the size of the general budget in comparison with the local budgets has been changing a good deal since both were inaugurated, depending on whether the Government General's role was increasing or decreasing. It is rather difficult to compare their relative importance, either in former times or today, first, because the local budgets are

subsidized in part by the general budget and, second, because the figures for some of the early provincial budgets are not available. A very rough estimate would be that, up to rather recent times, Indo-China's public expenditures were divided half-and-half between the local, municipal and provincial budgets on the one hand and the general budget on the other. For the last seven years, however, the division of expenditures among the several budgets can be worked out quite accurately and is detailed in Table 7.

TABLE 7
GENERAL BUDGET AND OTHER BUDGETS OF INDO-CHINA

	<i>General Budget</i> (per cent)	<i>Other Budgets</i> (per cent)
1931	56	44
1932	52	48
1933	51	49
1934	48	52
1935	49	51
1936	50	50
1937	57	43

The importance of the general budget in relation to the local budgets tends to increase, which is hardly surprising in view of the Government General's steadily growing role in guiding the colony's economy.

This tendency, however, meets with strong resistance from Cochin Chinese groups which emphasize the fact that an outlay under the general budget is paid for by all the countries in the Union in proportion to their revenue, without taking into account the extent to which each country benefits therefrom. Cochin China, for instance, which is far richer than its neighbors, furnishes about 40 per cent of the general budget funds, only 30 per cent of which is spent on Cochin China's behalf. In other words, that country pays part of the budgetary expenditures of Tonkin, Annam or Cambodia. In 1931 an Annamite delegate pointed this out to the Minister of Colonies, adding that in this way Cochin China assumed the burdensome role of a mother country without receiving in return either honor or responsibility.

The general budget:—The absolute value of the expenditures provided under the general budget increased rapidly with the colony's economic development. By 1931 they totalled 108 million piastres as against 17 million in 1899, 35 million in 1914 and 76 million in 1924. The depression, however, brought in its train a rapid decrease in public expenditures; by 1935 the general budget had been cut down 49 per cent to a total of 55 million piastres. Since that date, thanks to improved economic conditions and the evolution of the currency situation, the general budget increased from 57,919,000 piastres in 1936, to 59,479,000 in 1937 and 89,206,000 in 1938. In other words, between 1935 and 1938 the budget increased 65 per cent. The shrinkage and subsequent expansion in expenditures were not, however, applied proportionately to the budget's several sub-sections, and as a result the budget today presents a very different over-all picture from that of seven years ago.

TABLE 8
EXPENDITURES UNDER THE ORDINARY GENERAL BUDGET
(in thousands of piastres)

	1931	per cent	1935	per cent	1938	per cent
Debt Service	3,335	3.5	14,022	26.7	15,516	19.2
Quota *	11,517	12.2	3,941	7.0	4,127	5.1
Administration	54,234	57.0	26,625	47.6	38,860	48.0
Public Works	15,158	15.9	4,545	7.6	9,841	12.2
Local Budget Subsidies	10,762	11.4	6,316	11.1	12,537	15.5
Total	95,006		55,449		80,881	

* Paid to the French budget.

The decline in the percentage of expenditures for public works, which fell from 15.9 per cent in 1931 to 7.6 per cent in 1935, is explained by the fact that during the depression years the initial costs of new public works were transferred from the ordinary budget to an extraordinary budget financed by loans. It being impossible for Indo-China to depend on such loans permanently without increasing its financial obligations excessively, the Government General reincorporated public works' expenditures under the ordinary budget in 1936.

Although Indo-China's debt, almost entirely held in France

and payable in francs, was reduced to a very low figure by the French devaluation of 1928, during the crisis years it increased again sharply as a result of the policy pursued by the Government General in order to maintain the colony's economy—the initiation of large public works and loans advanced to classes of producers who were in financial straits.

The sum total of loans borrowed by Indo-China before 1931 amounted to some 400 million gold francs, plus 8 million piastres. Issued in successive blocks, the 1,370 million franc loan which the Government of Indo-China was authorized to issue in order to provide for extraordinary needs in 1931, brought the total public debt of the Union up to about 2,000 million francs. Meanwhile interest in arrears piled up from 3.4 million piastres in 1931 to 14 million in 1935 and 15.5 million in 1938 or 19.2 per cent of the budget's sum total in that year.⁵

Nevertheless, it cannot be too much emphasized that the policy of maintaining the colony's economy, carried out by the Government General at the price of a considerable increase in the public debt and its charges, had its counterpart in the very pronounced deflation of ordinary expenditures for which the Governors General worked hard. This deflationary policy reduced general administrative expenses from 54.2 million piastres in 1931 to 26.6 million in 1935. But reductions such as these, which affected the funds available for salaries and indemnities for employees as much as those for material replacements, could not be maintained indefinitely, especially since the piastre's downward course, linked though it was to the franc, produced an increase in the cost of living parallel to that taking place in France. Therefore, in the 1938 budget administrative expenditures totalled 38.9 million piastres, a 45 per cent increase since 1935. Similarly, local budget subsidies which had been cut almost in half between 1931 and 1935, jumped from 6 million piastres in the latter year to more than 12 million in 1938. On the contrary, Indo-

⁵ "Indo-China . . . would have been crushed by her debt if the conflicting action of the rising piastre and the falling franc had not lightened its expenses to a very great extent." (A. Touzet, *Le problème colonial et la paix du monde*, Paris, 1938, Vol. III, p. 273.)

China's contribution toward France's military expenditures in the colony (10 million piastres in 1931) was sharply reduced on two occasions and today is little more than 4 million piastres.

Local budgets:—Table 9 shows that the deflationary policy carried out by the Indo-Chinese authorities during the depression years was not limited to the general budget, but also applied to the local and provincial budgets.

TABLE 9
LOCAL AND PROVINCIAL BUDGETS
(in piastres)

	<i>Local Budgets</i>		<i>Provincial Budgets</i>		<i>Total</i>	
	<i>Budgets</i>	<i>per cent</i>	<i>Budgets</i>	<i>per cent</i>	<i>Budgets</i>	<i>per cent</i>
1931	52,827,655	68.4	24,349,694	31.6	77,177,349	100
1932	48,778,905	67.2	23,640,550	32.8	72,419,455	—
1933	45,133,711	70.1	19,251,773	29.9	64,385,484	—
1934	41,261,188	70.5	17,180,443	29.5	58,441,631	—
1935	38,627,293	70.5	16,120,519	29.5	54,747,812	—

The savings made in these local budgets did not exceed 30 per cent—well below the general budget reductions which were in the neighborhood of 50 per cent. It should be noted, however, that the decrease in the latter was in part a mere accounting device, since from 1931 to 1935, 125 million piastres' worth of public works' expenditures were transferred to an extraordinary budget.

Since 1936, local budgets have expanded again, and for the same reasons as did the general budget. But, since their resources are less elastic than those of the general budget, they were particularly affected by the rising cost of living.

Revenue

By the decree of 1899, the proceeds of indirect taxes, because of their impersonal character, were assigned to the Government General while direct taxes were assigned the local administrations. Despite its appearance of simplicity, this division invites criticism. First, the criterion is so indefinite that the several authorities sometimes disagree as to whether a particular tax belongs in the first or second category. Secondly, specialists in general agree that there should be correlation between indirect taxation, which is particularly burdensome

for the poorer classes, and direct taxation which permits heavier pressure upon the more well-to-do classes by a sliding scale of rates. In Indo-China, however, where direct and indirect taxes are appropriated to different budgets, it is very difficult to keep a balance between the two tax groups. Lastly, this division of the proceeds does not take into account the financial needs of the various administrative branches.

In order to correct the defects inherent in the system, subsidies from the general to the local budgets were multiplied, but the basic problems of Indo-China's fiscal structure were unaffected by this measure. Recently, however, the subsidy system was improved by the creation of three common funds, the proceeds of which are divided between the general and the local budgets. The first is maintained by a tax on native alcohol, the second by a surtax on gasoline and the third by taxes on tobacco and mineral oils. Having an interest in the yield of the pooled taxes, the local administrations therefore supervise their collection more carefully; moreover, local revenues, as a result, are in better proportion to the region's resources than they were in earlier years. With this exception, the general budget is maintained by revenues from customs' duties and registrar-dues, taxes on the consumption of opium,⁶ alcohol, salt, etc., the general internal tax, and taxes on income from securities and on the profits from such businesses as the post, telegraph and telephone.

Revenue from these sources is detailed in Table 10.

TABLE 10
GENERAL BUDGET REVENUE
(in thousands of piastres)

Source	1933	per cent	1935	per cent	1938	per cent
Customs and Excise duties	42,097	82.3	42,255	82.1	65,525	79.6
Registrar-dues	5,363	10.4	5,467	10.6	11,181	13.5
Business tax	3,773	7.3	3,700	7.3	5,747	6.9

Local budgets, on the other hand, impose personal taxes on Europeans and Asiatics and various taxes on junks and barges, weights and measures and on commercial settlements.

⁶ During recent years, receipts from the opium excise tax have decreased.

The personal tax on Asiatics takes the rather elementary form of a progressive poll tax, while the tax on Europeans, unremunerative for many years, was recently replaced in Cochin China and Tonkin by an income tax of the type in use at home.

In 1937 Indo-China's expenses totalled 140 million piastres as against 106 million in 1935 and 175 million in 1931, thus paralleling rather closely the development of the country's economy and maintaining its level at about 15 per cent of the national income. The smallness of this percentage, however, is misleading for it does not imply that the tax burden is well distributed and does not weigh unfairly on some groups of taxpayers. As a matter of fact, the direct taxes on Asiatics were so inelastic that, during the depression, they had to be reduced in order to take account of the natives' shrunken resources.

This inelasticity in Indo-China's tax system led to the establishment of reserve funds for the Government General and each of the local administrations. Budget surpluses are paid into these funds where they accumulate in order to offset subsequent deficits. The autonomy of the local treasuries is abandoned, however, when it comes to seeking credits, for the Act of 1910 provides that only the Government General has the right to borrow. This Act enabled the local governments to shift the blame for the results of a poor administration on to the Government General. In such a case they would even receive an indirect subsidy since the debt service would fall on the general budget. Obviously, this is a fundamental, structural defect.

Indo-China's Public Debt and Capital Equipment

The limits set to Indo-China's public debt by the country's resources and the standard of life of its people constitute a serious problem. Starting with the technical information supplied by the Public Works Department, it is apparent that the projects already undertaken, particularly in the field of irrigation, can produce rather high returns and that the resulting increase in crops often counterbalances the capital investment within two or three years. In such circumstances it might seem

timely to undertake a huge public works program to be financed by loans, since it would seem possible, thanks to the increase in revenue from the resulting development of agricultural production, to ensure the refunding of the capital invested.

Tempting as this thesis may be, it cannot be upheld. While it is true, as pointed out by the Treasury, that the agricultural irrigation projects have resulted in real crop increases, the population grows at least as rapidly as the latter. As a result, since the living standard of the masses hardly improves at all, it is therefore unwise to plan to increase their tax burden.

Public works should be regarded as outright capital expenses and should therefore be included in the ordinary budget. As a rule, this policy has been followed. Of the 650 million piastres appropriated for public works between 1900 and 1930, 550 million came out of the ordinary budget. During 1931-1937 the government had to work on the opposite theory in order to ease Indo-China's tax burden without hindering its economic development. Out of 175 million piastres' worth of projects carried out in that period, 125 million were obtained by loan. At that time Indo-China was very hard pressed but as soon as the crisis was passed, the funds appropriated for public works were returned to the ordinary budget. It should be pointed out here that, due to the decrease in wages and raw material prices, the cost price of the projects carried out during the depression was relatively low and their real value greatly exceeds the nominal total of the invested capital.

The above short description shows that Indo-China's public finances are highly sensitive to economic changes. In prosperous times tax receipts increase rapidly, inflating the budgets. During a depression, on the other hand, tax collections shrink and expenses must be severely curtailed lest excessive taxation crush the mass of the people whose standard of living is still precarious. Likewise, currency fluctuations and their effects on prices shift the budget's equilibrium either in one direction or another, depending on the inertia shown in the tax returns.

Indo-China's finances must therefore be administered flexibly so as always to fit the needs of the hour, but also with

sufficient firmness so that the savings which circumstances may demand can be made in time, in spite of the resistance which any deflationary policy is bound to encounter.

PRIVATE CAPITAL

Lacking official statistics for the years preceding 1924, it is extremely difficult to study the history of French investments in Indo-China. The information available is so fragmentary that it is impossible to calculate the total capital invested in Indo-China since the conquest. Nor does it indicate how this total has changed from year to year; to a great extent the ebb and flow of the hopes inspired by the colony's exploitation remain unknown to us.

One fact is certain. At the first onset capital did not enter the whole field of the country's agricultural and mining potentialities. On the contrary, prospecting preceded clearing the soil and the first attempts were very scattered.

More tempting, perhaps because more mysterious, mines attracted French capital from the very beginning of the occupation. Starting in 1888, the amount of capital invested in the coal industry rose quite rapidly to 8 or 9 million francs with the opening of the Tonkin coal desposits which form the Hon Gay and Ké Bao mines today. This figure remained unchanged until the Dong Trieu basin was first worked in 1916.

Interest in tin mining developed later, and it was not until in 1901-1902 that two companies were formed with about 2 million francs of capital to prospect and start working the fringes of the Cao Bang area. One of these companies was taken over in 1911 by the Tonkin Tin and Wolfram Company whose field of operation had widened to include Laos. A few years later, toward 1906, three companies with an original capital of 2 million francs were formed in order to exploit the zinc ore deposits of Upper Tonkin.

Organized in 1899 with one and one half million francs of capital, the Artificial Portland Cement Company of Indo-China depended for its raw materials on deposits located near Haiphong and, together with the above six companies, formed the beginnings of Indo-China's mining industry. Alto-

gether the capital invested in mineral development does not seem to have exceeded 15 million gold francs.

However, population density in the Tonkin delta and the existence of considerable urban centers could not but instigate the establishment of manufacturing industries. The first European industries, devoted to processing paddy into rice and rice into alcohol, and to the manufacture of simple articles for local consumption, were started ten years after mining operations began.

In 1900, the French Distilleries Company of Indo-China took over the plant of a joint-stock company, formed some time previously, while at the same time the first cotton spinning mill began work in Haiphong. This latter industry grew rapidly by absorbing three *competing companies* in rapid succession. Cambodia's cotton production, however, was still inadequate and had to be supplemented by purchases from India and the United States.

Similarly, electrical works were built to furnish the necessary current for urban consumption and to supply street car services in the principal cities. The construction workshops and public service companies found valuable markets in those industries which were getting their basic equipment. For several years, however, their best customer was the Yunnan Railroad Company. Established in 1901 at the instigation of the French Government and with the help of the Bank of Indo-China and the big French credit houses, its construction swallowed up 102 million piastres in ten years.

Finally, a table published in 1908 by the *Bulletin Économique de l'Indochine* shows that, in addition to the above mentioned companies, breweries, tobacco and match factories and branches of the big French metallurgical companies were all operating in Indo-China. According to the same table, capital invested in Tonkinese industries up to that date totalled about 40 million gold francs.

At the same time that mining and industrial concerns were extending their activities, business houses were being formed or developed. Chinese and Indian capital, although not included in the official figures, have always played an extensive role in the trade in rice, maize, silk and tropical products;

it is difficult to calculate the sums invested in commercial houses.

Although mining, industrial and commercial undertakings proved rewarding enough to attract rather large amounts of foreign capital, for a long time agriculture was neglected. Scarcely before 1910 did the flow of capital turn to the cultivation of the land. Forests were the first object of this development and in 1905 and 1908 two companies with a total capital of 5 million francs were the first formed to engage in this business. At about the same time European settlers were planting tea and coffee as well as sugar cane but no companies were formed to undertake their intensive cultivation. In 1906, nevertheless, the profits earned by a settler who had planted a few thousand hevea trees were so good that they spurred on several Europeans living in Indo-China to join in organizing a small rubber company. Thanks to the boom in the raw material, their example caught the attention of French capitalists and from 1910 on there were several companies with a combined capital of from 7 to 8 million francs engaged in building up hevea plantations.

Considered as a whole, Indo-China can hardly be described as having widespread economic development in the pre-war period. European attention and capital were concentrated on a few favored products like coal, zinc and tin on the one hand and hevea and, to a lesser degree, coffee on the other, while the country's other resources were left to the natives who worked practically without capital.

But a start had been made. Companies already in operation were calling for new capital and, attracted by their success, new ones were formed to imitate them. Unfortunately, war broke out and all investment suddenly stopped.

Details of the situation prevailing at the end of the war are given in Table 11, and are quoted from the Indo-Chinese Statistical Office.

These figures, which are estimates and undoubtedly rough ones, are based on information relating to this period in the development of French capital investments. Moreover, whether or not the figures given in Table 11 are exact in themselves, they demonstrate that there was very little change between

TABLE 11
FRENCH CAPITAL INVESTED IN INDO-CHINA BETWEEN
1888 AND 1918
(in millions of gold francs)

Industry and Mining	249
Transportation	128
Trade	75
Agriculture	40
Total	492

the early days and the end of the World War in the relative importance attached rightly or wrongly by capitalists to the different groups of resources in Indo-China. The extractive industry was somewhat widened, new companies having been created to mine gold, lead, graphite and phosphates, but in agriculture, hevea cultivation was the single development.

Since the war and especially in the years preceding the worldwide depression a far more comprehensive program of developing the riches of the Indo-Chinese Union was put into effect. From 1924 on, the available statistics give the total investment made yearly in each large group of undertakings. It is therefore possible to present a more accurate and detailed picture of capital movements after that date than for any previous period.

Beginning when detailed information about it was first fully recorded, the capital development of Indo-China should be related to economic conditions in the world at large in order that it may be thoroughly understood. Investments made before that time were the result of scattered efforts. Since the war, on the contrary, groups have been formed with powerful financing at their disposal, which take care to coordinate new ventures. The French and colonial financiers leading these groups make their decisions in the light of world conditions; at one time they even succumbed—together with the United States—to the illusion of indefinite prosperity which led to the 1929 crash.

From 1924 on, therefore, Indo-China drained off a good deal of French capital. The abundance of inflation-born currency resources facilitated investment while the franc's depreciation made money seek the security offered by the piastre.

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Nevertheless, the importance of the currency question should not be overemphasized because at the same time Europeans in Indo-China were themselves borrowing large sums in piastres from their bankers for investment in local businesses. Furthermore, statistics show that this capital did not flow equally into all the colony's economic resources, but rather that it went first into agricultural undertakings and only spread later to mining and trade.

TABLE 12
LOANS ISSUED BY INDO-CHINESE COMPANIES BETWEEN 1924 AND 1930
(in millions of francs)

	<i>Agriculture</i>	<i>Mines</i>	<i>Industry</i>	<i>Transporta- tion</i>	<i>Trade</i>	<i>Banks & Building and Loan Assns.</i>
1924	52.1	18.7	71.7	6.0	40.9	59.5
1925	76.9	19.3	62.2	5.0	32.6	2.2
1926	275.7	94.3	112.9	5.1	60.2	84.7
1927	400.7	79.5	62.4	31.1	17.2	65.3
1928	213.5	184.4	88.4	37.2	55.0	174.0
1929	135.7	149.5	110.6	46.6	42.3	244.9
1930	118.0	108.0	98.0	43.2	115.4	113.5
Total	1,272.6	653.7	606.2	174.2	363.6	744.1

In agriculture hevea had the leading position.

The increase in the price of rubber, which rose to 4 shillings a pound in 1925, the large profits which the plantations had begun to yield and the prosperous picture presented by the Netherlands Indies all combined to bring some 700 million francs to Indo-China's hevea plantations in the four years between 1925 and 1929; in a slightly longer period, between 1920 and 1929, those plantations expanded from 15,000 to 100,000 hectares in total area.

At the same time, though to a smaller extent than hevea, other agricultural products proved rewarding enough to tempt capitalists. The rise and the later fluctuations, always at high levels, in vegetable raw material prices invited capital investment in the cultivation of tea, coffee, cocoa and sugar cane and even cotton which seemed to have found Cambodia as favorable a habitat as British India.

Meanwhile, the prosperity of agricultural undertakings incited widespread infatuation with Indo-Chinese business and, in 1928, two years after industrial husbandry and the plantations got off to a good start, statistics show a sharp increase of investments in other fields and particularly in mining. A great many companies were formed to prospect and work copper, gold or tin deposits—searches which often were fruitless and work which sometimes was not even started. Not less than 240 million francs went into mining in 1928 and 1929.

Trade and manufacturing industries enjoyed similar favor in varying degrees while the banks and building and loan associations, thanks to the vast potentialities opened up by the country's prosperity, made long-term investments amounting to 744 million francs between 1924 and 1930.

Altogether some 2,870 million francs were invested in the colony in one form or another between 1924 and 1930—Indo-China's prosperous post-war years. Table 13 shows how these

TABLE 13
CAPITAL ISSUES BY OLD AND NEW COMPANIES IN INDO-CHINA (1924-1935)
(in millions of francs)

	<i>Old Companies</i>	<i>New Companies</i>
1924	181.5	67.4
1925	125.2	73.1
1926	353.5	279.0
1927	366.3	268.3
1928	502.4	247.8
1929	471.9	236.7
1930	384.3	58.8
1931	115.9	14.5
1932	80.2	9.4
1933	121.6	11.4
1934	36.8	6.9
1935	28.0	6.7
Total	2,767.6	1,280.0

investments were divided between old and new companies. The sudden increase in loans issued for the establishment of new companies, in 1926-1929, is indicative of the hopes for an intensive development of the colony's resources. Vice versa, their rapid reduction and quasi-disappearance after

1930 reflects the great vulnerability of Indo-China, a raw material producer, to the depression then spreading throughout the world.

It should be pointed out that the changes in total annual issues are not particularly important and that it is better to distinguish between loans issued by old companies and by new ones. In fact, companies already established were taken by surprise in the middle of their tooling-up period and had to call for new capital to get through the critical phase. As a result the total capital invested in Indo-China during the first depression years did not decrease as much as might generally have been expected.

For similar reasons there was an abrupt increase of loans in the form of bond issues, their total rising from 21 million francs in 1929 to 152 million in 1930 and dropping to 57 million in 1931 and 39 million in 1932.

Yet, in spite of repeated appeals for savings, insufficient capital was forthcoming and the Government General of

TABLE 14
LOSSES THROUGH COMPANY DISSOLUTIONS AND CAPITAL REDUCTIONS
(1929-1937)
(in millions of francs)

	<i>Dissolutions</i>	<i>Reductions of Capital</i>	<i>Total</i>
1929	1.6	13.8	15.4
1930	42.7	79.2	121.9
1931	98.2	26.6	124.8
1932	36.1	115.5	151.6
1933	37.2	202.1	239.3
1934	31.7	74.2	105.9
1935	77.6	75.4	153.0
1936	86.0	42.8	128.8
1937	94.3	120.0	214.3
	<hr/> 505.4	<hr/> 749.6	<hr/> 1,255.0

Indo-China had to come to the planters' aid. For this purpose it set up a Special Loan Fund from which advances were made exclusively to hevea planters, totalling at least 100 million francs between 1930 and 1935. In spite of this help a great number of companies were unable to withstand the

storm. Many disappeared for good while others undertook large reductions of capital. Altogether the company dissolutions and the capital reductions entailed losses of 1,250 million francs of savings.

Thus, taking into consideration *the companies' debts to the banks* and the latter's so-called frozen assets of which mention will be made later, it is possible to evaluate at 1,500 million francs the depreciation during the last decade of capital invested in Indo-China. Of this figure the real meaning is evident when it is compared with the nominal capital (about 2,000 million francs) of the French joint-stock companies which represent the majority of the capital invested by companies established in Indo-China.

Going a little further into details in order to learn the losses suffered by different branches of Indo-China's economy, the plantations appear to head the list with a loss of 306 million francs in 1928-1935. Industry is in second place with 159 million francs, then comes trade with 150 million francs.⁷ Comparing the size of the losses with the capital investment, however, the most serious capital depreciation would appear to have been felt in trade, followed by industry, while plantations fall in third place. This is not astonishing since the *plantations, forming as they do the largest part of Indo-China's agricultural development, received Government help* just because of the seriousness of their position. They were shielded to some extent from the risks entailed by the depression. Some new companies, moreover, did not suffer directly from the sharp decrease in rubber prices since their recently planted trees were not ripe for production until 1934 or 1935 by which time the raw material had definitely increased in price.

While it is impossible not to appreciate the magnitude of the losses suffered by private investments in Indo-China, it would be just as mistaken to consider that they represented the depression's cost to the entire Indo-Chinese economy. A rather important portion of the machinery and buildings belonging

⁷ Followed by mining with losses of 104 million, banks with 101 million and real estate companies with 57 millions.

to the bankrupt companies was taken over by new businesses at such prices that they could be used at a profit.

The depression which began in 1930 was gradually overcome during the following four or five years, assisted by a vigorous policy of budget deflation which rapidly strengthened the colony's financial position.

Following the government's example private business proceeded to curtail its expenses and to carry out large mergers of companies engaged in mining and agriculture, thus creating several powerful organizations. The Indo-Chinese Tea Plantation Company, with 26 million francs of capital, was formed in 1933 by merging three older plantations. Two years later four rubber companies joined in organizing the Indo-Chinese Hevea Plantation Company, whose capitalization at 29 million francs was raised to 61 million in 1937 when three more companies were absorbed. These, to be sure, are merely instances of a trend which is interesting in more respects than one.⁸

From 1936 on there was a renewed flow of private capital to Indo-China:

	<i>In millions of francs</i>
1934	48.5
1935	40.8
1936	103.6
1937	153.9

Far below the level attained during the prosperous twenties, new issues amounted to some 100 million francs in 1936 and 150 million in 1937 as compared to 750 million francs, the sum invested in 1928. Despite this unfavorable comparison, the above figures indicate an undeniable recovery.

As Table 15 shows, *different types of industry* have shared unequally in recent issues. By 1937, *manufacturing industries* and public service and electrical companies showed the greatest increase while agriculture and mining, formerly in the lead, had *only increased slightly over their depression low points*.

⁸ Six operating companies accounted for more than 90 per cent of the total 1937 mining production (valued at 193 million francs), a single company producing more than 45 per cent.

TABLE 15
CAPITAL ISSUES IN VARIOUS TYPES OF BUSINESS (1934-1937)
(in millions of francs)

	1934	1935	1936	1937
Plantations	27.0	24.7	52.5	36.4
Mines	3.4	0.2	12.7	10.8
Manufacturing	3.9	4.3	24.3	32.9
Public Services	0.2	1.1	0.3	43.7
Transportation	2.4	6.0	1.8	20.1
Trade	4.6	3.3	5.4	4.2

Today's recovery therefore seems to be taking a new direction, confirming the trends in the use of private capital in Indo-China evident at earlier times. The colony has been developed at successive levels, each new stage of development being in a different field. The result is a constantly widening utilization of the country's resources. Perhaps today will see the inauguration of the industrial stage as a sequel to the development of mining and agriculture. But the presence of conditions favoring industrialization—abundant labor and fuel in particular—are offset by two fundamental obstacles, one monetary, the other economic.

First of all, capital must be secured in order to set up new industries. Here the monetary factor, so favorable to the boom of the twenties, has become somewhat of a hindrance because, ever since 1936, any depreciation in the franc has entailed a corresponding depreciation in the piastre. The second problem is to find the markets which are essential for industrial products, and this is an unpromising task.⁹

However that may be, it is undoubtedly true that, having played a large part in Indo-China's economic development up to now, private capital still has an important role in the future. Both the size and the form which investments will take during the next few years will probably be closely linked up with monetary, economic and political problems which cannot be solved by private initiative alone. Having passed through periods characterized first by the planter and then by the capitalist, Indo-China's development now seems to be entering a third, which will be marked by ever-increasing government intervention.

⁹ See below, p. 384 ff.

CREDIT

There is a large place in Indo-China's economic structure for all forms of credit. Moreover, healthy credit distribution may be called essential to the country's life and a condition of its growth.

Lacking foresight and capital the rice planter often borrows both the seeds and the work buffaloes necessary to farm his land. When the harvest is bad he must also find funds with which to pay taxes and fulfill his religious and family duties. A money lender, whether merchant or big landholder, will readily advance a loan, but on very harsh terms. The debt will be repaid with difficulty, often at the cost of pawning the harvest, or even the fields.

Trade at usurious interest rates in assets which are unused by the mass of natives is clear indication of an impoverished population living on the edge of its means and often a little beyond. As a matter of fact, small savings reserves soon proved insufficient for the natives' credit needs and for a long time *foreign capital, both Chinese and Indian*, has been entering Indo-China where it has been profitably invested. Every year the manufacturers and Chinese exporters in the Saigon-Cholon market make loans in order to finance the rice harvest, the cornerstone of their business.¹⁰

Furthermore, professional bankers from India (*chetties*) and from China have specialized in this kind of business. In every case, the loans agreed upon are personal credits whose repayment involves a good deal of risk. This explains in part the high interest rates which seem exorbitant at first sight. When the French occupied Cochin China, for example, interest rates varied from 3 per cent to 40 per cent per annum, and today they are little lower.

It should not indeed be assumed that the introduction of European credit methods, based on taking real guarantees such as pledges, securities and mortgages, and the relative abundance of money resulting from French capital imports, caused the rapid disappearance of usury in Indo-China.

For a very long time there have been two types of credit

¹⁰ See below, p. 309.

in Indo-China, one adapted to the natives' mentality, the other to European business houses in their relations with each other and with the home country. It is only in the last ten years that the government has actively opposed usury.

In the period which lasted till about 1920 credit in Indo-China was extended by traditional usurers and by specialized European organizations, both operating in distinct spheres.

As soon as trade relations were established between France and Cochin China the Comptoir National d'Escompte of Paris set up a branch in Indo-China in order to secure for itself a position similar to the one it held in the older colonies, but that great French credit house did not have enough drive to cater to the needs of Cochin China whose external trade totalled 100 million francs by 1870.

It was in 1875 that, with the help of several other big French banks, the Bank of Indo-China was organized and endowed with the right to issue currency throughout the Union. At first limited to Indo-China and French India, its activities later spread to China and French Oceania.

Trade profited from the care of the Institut d'Émission. Having stood its test in China, the comprador system was adopted in Indo-China and thus, by placing an intermediary between the banks and the native merchants, it appeased the Annamites' and Chinese suspicions about European banks and led them to take advantage of the new organization's services. Discounts and advances were made by the Bank of Indo-China under much more flexible conditions than those enforced by the French banks.

At the same time, in order to furnish agriculture with credits proportionate to its activity, a portion of the funds created by the issuance of bank notes was earmarked for agricultural financing. Unfortunately, the individual loans provided for by the decree of January 21, 1875, were found to be impractical, and an order dated April 22, 1876, authorizing the townships (*communes*) to borrow from the banks on behalf of their dependents, was just as unsuccessful. Agricultural loans, as a matter of fact, do not conform to the issuing banks' need for liquid funds. Moreover they run counter to tradition and arouse the natives' mistrust. As a result, up to today, the

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distribution of credits to native farmers has been very slight.

In 1913, mutual loan associations were organized in Cochin China, which landholders could join by subscribing a ten piastre share. The purpose of the mutual loan associations was to facilitate the granting of loans on as easy terms as possible by increasing the borrower's credit.

In practice, the mutual loan associations were merely a convenient way to extend the issuing bank's cheap credit policy to the rice cultivators. Table 16 shows how both the capital and the total amount lent by the mutual loan associations increased between 1913 and 1930.

TABLE 16
CAPITAL AND LOANS OF THE MUTUAL LOAN ASSOCIATIONS
OF COCHIN CHINA
(in piastres)

	<i>Capital</i>	<i>Total Volume of Loans</i>
1913	3,950	99,642
1923	67,715	2,808,298
1928	217,735	11,539,481
1930	265,971	15,108,778

These few figures sufficiently indicate the extent of the re-discounts which the issuing bank had to make. It is noteworthy that the discount rate of the Bank of Indo-China was about 8 per cent while loans granted by the associations carried interest rates of 10 or 12 per cent. The difference in discount rates enabled the associations to accumulate reserves and repay the Government General of Indo-China, the guarantor of the ultimate success of their dealings with the Institut d'Émission.

After the war and beginning in 1923, private capital flowing in from France began to turn toward rice cultivation. Banks already established in Indo-China were paralleled by land banks but, while the mutual loan associations had specialized in small loans, never exceeding 8,000 piastres, to the middle-sized landholders, the new companies granted much larger sums. In theory their loans were guaranteed by first mortgages often endorsed by well-known solvent landowners. The amount loaned by these companies rose rapidly from 49

million francs in 1925 to 138 million in 1928 and 202 million in 1930.

In spite of these considerable activities, it is important to emphasize that up to that time Cochin China had been almost the only object of the government's concern. It was only in 1927 that the administration began to organize agricultural credit in those countries of the protectorate where it had been impossible to extend the principle of mutuality applied in Cochin China.

In spite of the strains which this system had undergone in application it required the existence of rice planters owning a few assets which could be put to common use, as well as the establishment of a land registry. It therefore was quite inapplicable in Cambodia, Annam and Tonkin where the people were almost without resources and the estates unorganized.

On July 21, 1927, the Governor issued an order establishing the *Crédit Populaire Agricole* in these provinces, modelled on the Javanese system of three grades of agricultural banks, local banks, provincial banks and a central fund. In Indo-China committees of leading citizens were substituted for the local banks; the provincial banks numbered 13 in 1930 and 24 by 1933; while the organization of the central fund was postponed until 1932. The Bank of Indo-China was required, under Government guarantee, to respond to requests for loans made by the *Crédit Populaire*. Total grants to native rice farmers amounted to 1,967,000 piastres in 1929.

The activity of European credit groups did not, as might have been expected, strike a mortal blow at the Chinese and Hindu banking business. The inquiry into Indo-Chinese indebtedness undertaken by the Government General of Indo-China in 1930 showed that, far from interfering, the different types of credit dovetailed with each other. Frequently, indeed, the Indian or Chinese usurer continued to grant loans without any security whatsoever or only on the margin left between the value of the security and the amount advanced against it by European banks. Sometimes an Annamite landowner could even turn to the Agricultural Credit Funds for funds which he would subsequently reloan to his fellow-citizens on more stringent terms.

However that may be, at the moment when the first symptoms of depression appeared, the piling up of agricultural loans and the liberality with which loans were granted in both industry and trade had resulted in an Indo-Chinese credit inflation, the liquidation of which threatened catastrophe. The fall in the price of rice had so decreased the value of rice plantations that it was impossible for creditors to realize on their mortgages.

Far from planning a credit deflation it seemed essential to improve credit distribution, if greater disorganization of the country's economy was to be avoided. To do this, the authorities used existing organizations and new institutions at one and the same time. Because of their close connections with the rice planters, the mutual loan associations of Cochin China were designated as intermediaries in the granting of rural and harvest loans (the maximum Government guarantee being raised from 12 to 15 million piastres). If other available security were lacking, the associations stipulated that loans could be repaid by the delivery of a certain amount of paddy which, by the way, was generously assessed.

Rural loans absorbed 1,189,019 piastres and harvest loans 219,762 piastres, the normal interest rate being 10 per cent. These loans were repaid under rather unfavorable conditions for, in most cases, the rice planters had to settle first with their most exacting creditors. In most instances, therefore, the Chinese bankers and chetties were repaid ahead of the Government. In 1932, 70 per cent of the loans was still outstanding. It became necessary to settle the frozen liabilities of the Agricultural Banks by creating a Central Mutual Credit Bank (Caisse Centrale de Crédit Mutuel) which was endowed with capital by the Government General and received a portion of the Bank of Indo-China's annual dues.

In the field of industrial agriculture, both rubber and coffee planters also benefited by special help. Beginning in 1930, the Government General decided to grant loans to rubber planters, secured by mortgages on the plantations, by means of drafts on the reserves in the Indo-Chinese budget. The size of these loans was as follows:

	<i>piastres</i>
1930	1,789,720
1931	2,487,077
1932	3,040,430
1933	1,392,800
1934	361,480
	<hr/> 9,071,507

By June 30, 1938, 6,810,897 piastres had been repaid. Loans to coffee planters, made on similar terms, amounted to 582,000 piastres, 237,000 of which had been repaid by June 30, 1938.

Taking their lead from the Institut d'Émission issuing bank, other banking houses established a very liberal policy with regard to industrial and commercial loans, including reduced interest rates, downward revision of the face value of loans and extended postponement of the repayment of re-negotiated debts.

This determined and comprehensive attempt to settle the commercial liabilities of business was carried on outside any legal framework and without involving the public finances, by loan houses which, in spite of the problems of a time which spared no one, were capable of practicing an enlightened policy, sparing the colony's collective interests at the expense of their own.

With a few reservations Governor General Robin was able to state in a speech on November 9, 1935, that "the frozen assets to the adjustment of which creditors had consented should total about 15 million piastres by the end of 1935"; the final settlements provided for "25 per cent capital devaluations; combined reductions and postponements of interest totalling contractual amortizations of 39 per cent; and reductions or postponements of overdue interest by 36 per cent. The reductions represented 46 per cent of the total loans."

Lacking detailed statistics, it is difficult to estimate the extent of the sacrifices made by banks in the emergency but the sum of 25 million francs would probably not be far wrong.

Even after mitigating the disastrous immediate effects of the depression, there still remained the numerous, serious problems raised by the load of debt weighing down on the rice

planters. Agricultural over-indebtedness is widespread and is observed in most countries in depression times. The sharp decrease in agricultural prices, always more affected by depressions than the prices of manufactured goods, made it impossible for the farmer to meet the repayment of debts contracted during prosperous years.

There are two remedies for this kind of thing. The first, adopted in the United States in 1934, consists in inflating the prices of agricultural products by devaluing money; the other, preferred by the Government General of Indo-China, consists in attacking the problem more directly by obtaining the reduction or adjustment of debts. Unquestionably, this solution, though much more equitable, is harder to put into practice because of the very lively opposition it arouses among creditors.

In order to avoid the brutal dispossession of indebted landowners which could only entail a collapse of rice prices, in 1932 the Government General of Indo-China created an office for long-term land loans. Its purpose was to build a framework of friendly adjustments between creditor and debtor. The new office's main job was to induce creditors to give up their claims to that portion of the loans which had been wiped out by the devaluation of the security; in return the Government would then repay the balance to the creditors. The debtors now owed the full amount of their debts to the Government which cut the interest rate to 7¼ per cent and allowed 15 years for repayment.

The land loan office operated through the Agricultural Land Bank, the Land Company and the Mortgage Credit Company of Indo-China, up to the moment when the latter institution absorbed the other two. Two conventions signed with the Land Credit of France had provided for the extension of a fifty million franc credit, later increased to 100 million, guaranteed by the Government General of Indo-China. Liabilities of 356 million francs were reported to the land loan office; large as it is, this sum is far smaller than those advanced by Cochin China rice planters in the course of their campaigns for agricultural debt revision.

The most debt-ridden estates were those in western Cochin

China which had been put into cultivation when the price of rice was rising steadily. Almost 70 per cent of the total declared liabilities had been incurred by just 337 landowners, an indication that, though of considerable extent, credit misuse was quite localized. In addition, the findings of the government inquiry showed the distribution of different credit sources in Indo-China, according to the creditors' statements:

	<i>piastres</i>
Mutual Agricultural credit associations	9,400,000
Chetties	9,617,500
French land banks and associations	9,158,200
Native agricultural mutual credit funds	4,742,000
Others	2,518,300

These figures do not accurately reflect the role of the various loan organizations in Indo-China for, while the French companies and the Agricultural Credit Funds declared their entire liabilities, only a part of the loans made by chetties are included. Moreover, Chinese bankers specializing in short-term credits were successful in most instances in recovering their entire loans without resorting to the land loan office.

Therefore, the figure of 365 million francs represents, not the sum total of Indo-Chinese indebtedness, but rather the critical indebtedness in urgent need of relief. Debts which did not come up for adjustment by the land loan office may be estimated at 200 million francs.

In the beginning, the land loan office met with rather stiff opposition, and the Government General had to make use of all its authority in dealing with obstinate creditors. Substantial results were soon achieved, however, for since 1935, 441 million francs worth of loans have been adjusted. Devaluations of capital averaged 47 per cent, and interest rates were reduced by 75 per cent on the average.

The land loan office obviously could not plan to finance all these operations in their entirety; it merely limited itself to distributing almost the entire 100 million franc credit made by the French Land Bank, while credit rotation made possible the payment of debts of more than three times the value of the funds at the disposal of the new organization.

Parallel with the activities of the land loan office were the

reorganizations initiated by various Indo-Chinese agricultural credit groups.

From 1933 on, the land banks largely gave up long-term credit operations, limiting themselves to the management of their securities and real estate and entrusting the handling of their old loans to the Mortgage Credit Company of Indo-China. Part of the latter were transferred to the Mortgage Credit Company in exchange for share receipts, and part were to be managed by the company on a commission basis. Consequently, loans appearing on the balance sheet of the Mortgage Credit Company of Indo-China increased from 83 million to 185 million francs between 1932 and 1933.

As for agricultural credit, the Central Bank, created in 1932 in order to liquidate the liabilities of the Mutual Agricultural Credit Associations, became responsible for all the bills which the Bank of Indo-China had discounted to these institutions. Interest included, these totalled 13,511,000 piastres in 1934, a sum which was subjected to a number of deductions and finally cut down to 7,150,000 piastres on January 1, 1938.

As soon as the mutual agricultural credit associations of Cochin China have been liquidated, their management will pass to the Indo-Chinese Office for Mutual Agricultural Credit, created in 1933. Agricultural credit will thus be centralized in a single organization, operating in all countries of the Union.¹¹

In summary, although Indo-China's economic structure was badly shaken by the depression it proved stronger than might have been expected. The credit inflation apparent in 1929 was gradually reabsorbed and, by the end of July 1938, the loans made by the Institut d'Émission had decreased from 67,191,000 piastres on January 31, 1933, to as little as twenty million.

Moreover, it should be pointed out that this credit deflation does not indicate a decrease in the country's economic activity, for the latter after having touched its lowest point in 1931, regained its pre-depression level in 1935 and has progressed without interruption right up to 1937. Today, Indo-China's economy once again stands on firm ground which

¹¹ See below, p. 241.

should enable it to take advantage of every improvement in the international scene.

If it be true that periods of depression and financial stringency allow the progress of credit institutions side by side with technical progress it is evident that in Indo-China the 1931 depression was not without positive results.

PART II
NEW ECONOMIC DEVELOPMENTS

CHAPTER V

FRENCH COLONIZATION

Few problems have been more discussed or give rise to more controversy today than those raised by European agricultural colonization in tropical lands. Is such colonization possible? Is it desirable? The arguments of medical men sometimes support, sometimes dispute those of economists and administrative officials; even in the ranks of a single discipline, agreement is by no means complete. According to one school of thought, improvements in hygiene and tropical medicine permit the settlement of European peasants in these climates whose evils, they believe, have been exaggerated. This group believes that the higher altitudes are most favorable to colonization, and maintains that such colonization is the sole guarantee of the continuation of French influence and administration. Others hold that the colonization of tropical lands by Europeans inevitably saps the settlers' physical vigor, as well as such moral qualities as initiative and energy which give them their superiority. They cite as examples the deterioration in creole communities, which even affected families that remained free from intermarriage. In other cases, they say, cross-breeding with the natives causes the decline.¹

Even if it is granted that, with certain precautions, the climate need not hinder European settlement in the tropics, the contact between Europeans and natives raises acute problems. It is generally recognized today that the European cannot engage in the same kind of agricultural tasks as the Indo-Chinese without being degraded to the status of the "poor white," struggling vainly against the competition of the colored man and forced, in order to survive, to reduce his needs to a minimum, lowering his standard of living to the point of

¹ See *Comptes Rendus du Congrès International de Géographie*, Amsterdam, 1938, Vol. II, Travaux de la Section III C, "Géographie Coloniale," pp. 3-365.

destitution. The European colonist rarely plays the role of peasant in the sense that this word is used in the Occident, particularly in France; he cannot carry on even reasonably well without the use of Indo-Chinese labor, and often he uses new farming methods as well as new crops. He does not engage in actual farm work, but instead manages and superintends the cultivation of a *relatively large holding*, whose yield is high in comparison with native plantations.

What limits should be placed on these European enterprises? What should be the relations between average-size plantations supervised by the owners themselves, and vast company estates with local salaried managers? What kind of relations should be established between European employers and native laborers for the best legitimate interests of both? What should be the exact status of land given, sold or leased to a colonizer?

An examination of the facts proves that generalizations are impossible. Certainly a knowledge of the climate alone is not sufficient for the successful launching of a colonization program. Almost everywhere in the tropics, climate limits the activities of Europeans. But again these limits vary according to the distribution and stage of development of the natives, according to historical circumstances, and according to the temperament and needs of the colonizing nation. The lessons taught by neighboring foreign colonies or by French tropical colonies in other continents such as Africa cannot be rigidly applied in Indo-China. Undoubtedly comparisons can be helpful, but *only if they are not too summary and do not oversimplify the circumstances peculiar to the case in question.*

THE LAND-GRANT SYSTEM

In some cases, European agricultural enterprises were undertaken on lands bought from the natives, but more often property was acquired through alienation of lands in the public domain or lands subject only to the native system of temporary cultivation on burned-over land (or *rai*).

The granting of land to "colonizers" in Indo-China is subject to regulations which, while at first disparate—varying according to locality and leaving local chiefs a great deal of

freedom—has become increasingly strict and standardized. The principal steps in this development were the order of December 27, 1913, which first laid down a series of regulations, applicable to the entire Union, for the transfer of public lands; and the decree and order of 1928 and 1929, which strengthened the control of the Governor General and of the mother country, and set up a general colonization program.

The free grant, made in exceptional cases, has been preserved to assist small and medium-sized enterprises, but it is limited to a maximum area of 300 hectares. Otherwise, land is assigned by contract, on certain conditions, by order of the chief local official (*Résident Supérieur* or Lieutenant Governor) for grants under 1,000 hectares; by order of the Governor General for grants between 1,000 and 4,000 hectares; and by decree of the Minister of Colonies for grants exceeding 4,000 hectares. The grantee does not receive final title of ownership until after official verification that certain improvements on his holding have been made; if this is not done within a specified time the uncultivated area may be taken back.

While the Indo-Chinese government favors the French planter, it is less generous toward foreigners than the governments of the neighboring colonies of British Malaya and the Netherlands Indies, where new cultivation has made splendid progress. In Indo-China only citizens, subjects or protégés of France may hold concessions. Thus, both white foreigners and Chinese are excluded. Where a grant is made to a company, the same restrictions apply to the majority of the stockholders, the managers and directors, and the members of the various governing boards. These requirements have proved to be too strict, since they have unwisely discouraged foreign capital.²

Recent laws anticipate that the government may soon share in the profits of these enterprises. This would be done by having new companies present the administration with a certain number of founders' shares or paid-up shares; and by tax on production paid by already established individuals or

² See the plea of Colonel Bernard, *Bulletin du Comité de l'Indochine*, Meeting of May 11, 1934, p. 34.

companies, the tax to be based upon the quantity and value of the salable commodities produced on the concessions.³

The desire to protect the natives from harmful over-extension of the European concessions is evidenced in the present laws. It is probably in this respect that it is most difficult to maintain justice. The question is not only one of a general and theoretical desire for equity; it calls for a real and thorough knowledge of the native mentality and way of life. It should be recalled that in most tropical countries, land ownership is not always regarded as it is in the Occident. It is true that the permanently cultivated lands, especially those of the Annamite deltas, are governed by a system of possession and tenure which the French farmer could probably understand. But it is not the deltas, already overpopulated and largely devoted to rice-growing, which offer the great opportunities for productive European colonization.

In the back country permanent cultivation, still based on the irrigated rice field, is confined to a few terraced hillsides and to the alluvial soil of a few basins and valley floors. Beyond these districts, usually near villages and representing only a very small part of the total area, there appear to be vast uncultivated expanses awaiting the colonizer. Here the superficial observer may be badly mistaken. Nevertheless, he does see traces of human activity in a supposedly virgin forest. This is the *rai*, the temporary field, still strewn with partly burned trunks, where mountain rice, corn, cotton, tapioca, etc., grow vigorously in the ashes of the wild vegetation which was burned at the end of the last dry season. These fires, whose smoke obscures the sky as they light up the night with their flames, are among the most thrilling sights that the European sees in tropical mountain country; they extend far westward, across Thailand and Burma as far as India, and also destroy the grasslands and forests of Africa and South America.

It has been proved that this type of agriculture is an inevitable result of the present development of native techniques. On the one hand, the precariousness of cattle-raising precludes the utilization of the draft-power and dung of domestic ani-

³ Y. Henry, *Économie agricole de l'Indochine*, Hanoi, 1932, p. 232.

mals, while, on the other hand, the very rapid lateritic deterioration of land left unprotected by this type of clearing justified a semi-nomadic agriculture. The *rai* is abandoned at the end of two or three years and left to revert to its former wild state until such time as it is again cleared by fire.

Therefore, it is quite wrong to regard as unowned and unused the vast areas in the back country which are not taken up by permanent farming. Almost always, in fact, they are regions of shifting agriculture. Each year certain tracts are improved; and these are customarily regarded, during the period of cultivation and production, as the property of the family which did the clearing. The unimproved portion is also utilized; it is a reserve which becomes the collective property of the village or the tribe, with boundaries firmly fixed by tradition. From the agronomic point of view, as M. Aug. Chevalier has so aptly said, it is "fallow forest land infrequently used."

While a jurist concerned primarily with the interpretation of native institutions may speak of the *rai* as land for which the occupant does not feel "an attachment comparable to that which the French peasant feels for his field,"⁴ nonetheless it is land on which he has rights, which, as a rule, he has used for a long time—often from time immemorial, and which is necessary to his existence.

The fallow area serves not only for the more or less rapid rotation of crops; it continues to be used in the intervals between clearings when it affords opportunities for hunting and nut gathering which are indispensable to the native's subsistence. Even the grasslands are useful to the traditional economy of the mountain peoples, for there the tall, tough grasses are burned in the dry season and the young shoots which spring up with the first rains are eaten by buffaloes and domestic oxen.

Undoubtedly this kind of agriculture, so widely practiced in all tropical countries, has serious disadvantages. In Indo-China it develops instability among the highland population,

⁴P. de Feysal, *La réforme foncière en Indochine*, International Colonial Exposition, Paris, 1931, p. 9. This is the definition which was given by a decree of October 8, 1925, applicable to French West Africa.

and also leads to the deterioration and eventual destruction of the forest. It should be stopped, but this is easier said than done. Changes can be effected only very gradually. To suddenly deprive the natives of the back country of having recourse to the *rai* would be equivalent to starving many of them. Like the plainsman, the mountaineer is often undernourished and has difficulty in getting through from one harvest to the next. In the autumn of 1938 in the forests around Pleiku in South Annam, the author saw innumerable holes dug by the Moi in quest of wild truffles following a poor rice crop. This observation could have been made in other districts as well.

A compromise had to be found between the colonial interests and the natives' vital needs. The natives' traditional rights to use land are specifically reserved in the contracts. As for the colonists, on the other hand, a systematic survey of the country was made in 1926, which fixed more or less precisely the zones which were and were not open to colonization in each province. This differentiation is often a difficult matter, for it must be based upon needs which may at first appear contradictory. The existence of the native communities must be assured, and this means that available land will be less plentiful where the population is denser; at the same time, new cultivation demands a rich soil, plentiful and obedient labor, and good communications—conditions not frequently combined in sparsely populated regions.

THE REGIONS OF EUROPEAN COLONIZATION

The changes which have taken place in the land-grant system are due in part to the evolution of European colonization. Settlement having begun in Cochin China, with the back country remaining very little known, it appeared at first that for the European, as for the native, only rice was remunerative. This opinion also prevailed in Tonkin and Annam for some time after their acquisition by France. It was around the deltas of the north, however, that the first real plantations were established at the end of the last century. These were small and medium-size coffee plantations.

Since 1910, the two main developments have been (1) the

advance of rubber which is today by far the foremost European crop, followed by tea which, although its progress is more recent, now surpasses coffee; and (2) the increasingly important part played by corporations in the development of plantations, especially since 1924.

Most of the new plantations are in the southern part of the peninsula for reasons, first, of climate and, second, of soil. North of Huê, the relatively cold winters prevent all rubber cultivation and likewise hinder the growth of tea and coffee plants in the highlands, which would otherwise be suitable for European colonization.

On the other hand, in the south there are large expanses of old lava flows. These were caused by a series of eruptions which were geologically very recent, since none of them apparently occurred before the Pleistocene Age. Their decomposition produces what are called the "red lands," very widespread over the granite or crystal-based plateaus of Bolovens, Pleiku, Kontum, Darlac and Djiring. They also extend, in a low crescent around the eastern and northern borders of the Mekong delta, from west of Kompong Cham to Baria on the coast.

In the latter relatively accessible region, rubber plantations had begun to expand before the First World War, while the Moi plateaus remained free from all colonization except in the vicinity of Dalat until 1924. Some regions, still unsubdued, could not be crossed except with an escort; there were few accurate maps; the topography was known only along a few widely separated routes. Climatic conditions were surmised from a series of brief observations made at scattered stations like the one at Kontum. It took the big speculative boom which followed the First World War to draw attention to the red lands of south Annam and to attract capital, especially between 1924 and 1928. A vast land development program was worked out for the plateaus of Kontum, Pleiku and Darlac, where the red land area is estimated at 600,000 hectares. One third of this, or 200,000 hectares, could be reserved, it is said, for European tea and coffee plantations without interfering with the Moi. A capital investment of at least 100

million piastres and a labor supply of about 400,000 workers—men or women—would be necessary for this development.⁵

These grandiose schemes are still far from realization. The depression soon dashed the hopes which had been all too high, and in many cases wiped out the results of the first efforts. Still, a beginning had been made. The extremely isolated regions between the Annamite deltas and the barren expanses of the forest glades were explored and prospected. Roads were constructed towards Saigon and the coast of Annam. Great progress was made in the scientific knowledge of the country. Furthermore, a network of observation posts permits the better recording each year of climatic conditions which vary greatly from one plateau to another, according to latitude, exposure, relief and distance from the sea. The Geographic Service has extended its regular and semi-regular topographical surveys: its map (drawn to a scale of 1:100,000) already reaches beyond Kontum and Ban Me Thuot, and is gradually filling in the uncharted area which still exists between the coast of South Annam and the Mekong. It is hoped that this peaceful factual conquest, the necessary foundation for every systematic and successful undertaking, is almost completed.

The soils themselves had to be carefully studied. The area of the red lands was explored and many samples of the soil analyzed. The term "red lands" includes rather diverse conditions. In fact, the color of the basaltic soils varies from brown, through all shades of red to reddish yellow; this shading away from brown corresponds in theory "to a decrease in the soil's mineral and humus content, that is to say, in its agricultural value."⁶ The rotten lava soils, formed on the spot, are mixed in variable proportions with soils carried from other places and with volcanic eruptiva—boulders, shells and ashes. In addition to differences in origin are differences due to the natural vegetable covering and those due to their relative proximity to the water table. Thus we see that the phy-

⁵ Y. Henry, "Les terres rouges du Kontum Darlac," *Inspection générale de l'Agriculture de l'Indochine, Feuille mensuelle de Renseignements*, No. 3, August 1936, pp. 85-86.

⁶ Y. Henry, *Terres rouges et terres noires basaltiques d'Indochine*, Hanoi, 1931, p. 34.

sical and chemical properties of the soils are far from uniform. The best are of fine texture, light, pervious and yet capable of retaining water, which enables them to remain fresh and moist for a long period; though poor in potash and lime, they are very rich in phosphoric acid. But these are the best possible conditions and are not present throughout all the basaltic formations; dense forest cover helps to preserve them, while too frequent fires or the too complete clearing of the soil brings about their rapid depletion through laterization. The preservation of the soil on the European plantations requires much more care than might be expected. Evaporation of the soil's moisture, often very intense during the dry season, which lasts for from four to six months—according to the year and the locale—and which is intensified by strong north-easterly winds, is a serious problem. The humus, which is very rapidly used up after the removal of the forest cover, must be replaced by dung, compost and green manure.

The "rush" to the red lands brought the government face to face with important social and political problems which up to then had remained in the background. First, there was the question of the relation between European colonization and native agriculture. Following the excessive grants made to certain companies, it was found necessary to give the natives an area of cultivable land corresponding to their traditional agricultural system, insofar as this was unchanged. The decree of November 4, 1928, provided for a special system of grants in the regions inhabited by the Muong and the Moi, the peoples most threatened by the encroachment of the plantations; it is evident that definite protective measures will have to be taken to safeguard the rights of all the high-land peoples in the greater part of the back country.

Because the Moi are sparsely scattered, unsettled and unaccustomed to steady work, it was necessary to go to Tonkin and Annam for plantation labor. The inevitable contact of these two ethnic groups which are in very different stages of evolution created other difficulties. These are by no means settled, but at least the attention of the administrative authorities is focused on them. A series of experiments have furnished a needed code of laws which, however, is at best only a com-

promise and necessarily subject to change. A better understanding of the Moi race, which up to this time had been surrounded with mystery, was not the least notable result of the opening up of the red lands: just at a time when their native traits were being threatened with rapid disappearance, they became the subject of careful study.

About 1890 there were 116 European concerns in Indo-China, 100 of which were located in Cochin China and occupied 11,390 hectares. In 1900 the total area of the European grants reached 322,000 hectares, of which 78,000 were in Cochin China and 198,000 in Tonkin. At present this area totals about one million hectares, with 110,000 in Tonkin and 610,000 in Cochin China:⁷ of this million hectares, 400,000 were under cultivation on January 1, 1937.

These figures call for comment as they seem to reveal a sharp decline in French colonization in Tonkin. Actually, however, a distinction should be made between plantations devoted to traditional crops and those growing rubber, coffee and tea.

EUROPEAN RICE PLANTATIONS

French colonization in Indo-China flourished between 1890 and 1900. Various political writers in France conducted an aggressive campaign to increase emigration to the recently acquired colony. They pointed to the French settlements in Canada which had prospered so well. They blamed French classical education, the abuses of officialdom, military service and the administration's lack of imagination, as the causes of the French stay-at-home temperament. "We seem to have accepted as an axiom," wrote Chailley-Bert in 1896, "that our colonies have been conquered for the benefit of our merchants and industrialists."⁸ Colonists, the publicists said, should be sent wherever the climate enabled them to live. Little enough was known about the climate of the overseas regions, but in addition to New Caledonia and Tunisia, they highly recommended Tonkin. It is amusing to examine some

⁷In addition, some lands have become the property of Europeans, generally through purchase: the total area of such lands was 133,000 hectares in 1930. Y. Henry, *Économie Agricole . . .*, *op. cit.*, p. 224.

⁸*La politique coloniale de la France*, p. 12.

of the hopes which this region aroused. For example, "Tonkin will doubtless be able to furnish us wheat as cheaply as North America."⁹ Yet some opinions were expressed which even today appear reasonable and have never been wholly given up: that increased numbers of French colonists would be the only means of maintaining French influence, and that their example would be a source of enrichment and of social progress for the natives.

This propaganda had only the most meager effects on the peasants of the mother country. Indo-China was far away, and land was not scarce in France, with its decreasing population. In short, few French citizens were interested in the exploitation of Indo-China's soil, except those who went for other reasons—missionaries, retired officers and discharged soldiers, who usually had but little capital and only the most elementary agricultural knowledge. It is no exaggeration to say that the barracks of the colonial troops and of the Foreign Legion were Indo-China's first agricultural schools. The majority of these chance colonists hesitated about trying new crops which would not begin to yield until after several years of work and whose success seemed hazardous to them. Only one product—rice—was assured of ready sale. It was to rice-growing that most European concerns turned, whether they worked land purchased from the natives or granted by the administration.

About 1893 the northern border of the Tonkin delta, north of the Red River, was depopulated by pirates, many Annamite villages were abandoned, and lands formerly cultivated were allowed to run wild. An attempt was made to reclaim this land by Franco-Annamite collaboration. The abandoned lands were granted to the French who in turn sought the aid of Annamite sharecroppers, granting them loans of buffaloes, food and tools, and supplies of seeds and manure; with French advice the sharecroppers succeeded in increasing the rice yield. Thus, in 1895, one of these plantations near Lam employed "two thousand individuals, comprising approximately three hundred families and fourteen villages, having required advances of 16,000 francs."¹⁰

⁹ E. Poiré, *L'émigration française aux colonies*, 1897, p. 124.

¹⁰ De Lanessan, *La colonisation française en Indochine*, 1895, p. 216.

But this cooperative venture was not to be successful. "In almost all cases, the farmers chosen by our fellow-countrymen soon gave up the cultivation of the lands which had been entrusted to them; discouraged and restless, they disappeared after having squandered the advance payments."¹¹ The Annamites re-established themselves in the old villages which they had abandoned and, in many cases, were rightly able to get back the areas which had been granted to Europeans. The behavior of the latter was not always above criticism. They sometimes discarded the role of guardian and educator and, instead, demanded exorbitant interest on their capital; in short, they imitated the activities of the rich native landlords. This was a highly undesirable situation and resulted in an adverse reaction, particularly after 1898. Some grants were abandoned and reassigned to the villages which had been reconstituted. The total area of European-owned rice plantations in Tonkin today is no more than 30,000 hectares.

In Cochin China, on the other hand, European-owned rice plantations have continued to grow ever since the introduction of irrigation in the Transbassac. They include only a rather small portion, about 250,000 hectares, of the total increase in the area of cultivated land gained through irrigation, but they comprise five-sixths of the total area of rice plantations owned by Europeans in all of Indo-China.

Among these European rice plantations of western Cochin China, even more than among those belonging to natives, large and average-size estates predominate. In Bac Lieu province, European rice plantations cover 61,116 hectares (of which 38,961 were under cultivation in 1937); 37,409 hectares belong to estates of more than 100 hectares each; another 16,828 hectares belong to estates of more than 500 hectares each; and three exceed 1,000 hectares, one totalling 5,200 hectares.

The so-called "European" rice plantation is not always French. Quite frequently it belongs to a naturalized Annamite who enjoys the protection of European law;¹² or it may be owned by corporations. In 1931 the rice plantations owned by

¹¹ From an unpublished report of M. Eckert, honorary *Résident Supérieur* in Indo-China.

¹² See above, p. 22.

individual French colonists in Cochin China numbered some 120 and their area was estimated at a little more than 100,000 hectares. It cannot be said that the colonists introduced new farming methods or that none refrained from using the tactics of certain large native landlords who are largely concerned with collecting rents and recovering advances made to the *ta dien* or, what was even more to their liking, living at Saigon, for example, and handing these responsibilities over to a manager.

It would be unjust, however, not to mention the few benefits which have resulted from this rice plantation colonization. Certain French landlords have tried to apply new methods and to promote their use by others; this was particularly true on the recently developed lands of Cochin China. "One such landlord, who today controls a vast domain where he still sets an example by engaging in the work himself, for many years steered the plow which buffaloes pulled through the flooded rice fields."¹³ This man, who came from the north of France, made the first experiments with mechanized rice cultivation in 1900. He proved that mechanization would encounter many difficulties and that it did not pay. In the middle of the countryside he set up a rice husking mill which could handle more than 60 tons of rice a day, and a mechanical sawmill. He had his own flotilla of motor barges and succeeded in selling his grain without the help of Chinese middlemen, an unusual achievement. He spent vast sums to improve the irrigation and drainage systems on his property. This is undoubtedly a unique instance, but a valuable one. Many other colonists, though less enterprising, have at least given the native landlords the very good example of paying their workers regularly and only making loans at reasonable interest rates.

Mention should also be made of the colonizing work of the Catholic missionaries, who because of their peasant origin, their diligence and their perseverance, have sometimes succeeded in creating new rural population centers. Thus at Yen Binh, in Tonkin, in the Song Chay valley, 3,000 Annamites

¹³ P. De Feysal, *L'endettement agraire en Cochinchine*, Hanoi 1933, p. 21. Most of these colonists bought their rice plantations outright and do not hold them by virtue of administrative grants.

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are today settled on 1,600 hectares, more than 300 of which are cultivated—an example of a type of colonization which, according to some, could be applied systematically in the back country in order to relieve the congestion in the crowded Annamite deltas.¹⁴ Around the rice plantations, which are essential for permanent settlement, other crops could be cultivated later—like lac at Yen Binh, and the coffee and tung tree elsewhere.

In 1931 the European rice plantations of Indo-China—which are almost entirely cultivated by native share-croppers—covered 300,000 hectares, almost three-quarters of the cultivated area in all European plantations.

COFFEE PLANTATIONS

It is not known at what date the coffee tree was introduced into eastern Indo-China. John White, the American who visited Cochín China at the beginning of the 19th century, records that the missionaries cultivated a few coffee plants from Java in their gardens, and that these were found in greater numbers at Hué than elsewhere "because of the large number of foreigners in the vicinity of the court."¹⁵

It was not until after the conquest of Tonkin that true plantations—in the European sense—were founded by the French colonists living on the edge of the delta. In view of the large market anticipated at home, coffee-growing was regarded as the most remunerative crop and the one most capable of swift expansion. It was often grown by colonists who had secured grants for rice-fields; the coffee was planted on the higher grounds and Annamite sharecroppers furnished the labor. The first plantation, comprising 300 *Arabica* plants, was established about 1888 near Ke So, in the vicinity of Phu Ly.¹⁶ It was this district, on the southern edge of the Tonkin plain, which was to become the chief coffee-producing region; on the northern border, on the contrary, coffee was rather unimportant on European plantations, compared to rice.

It was in the southern part of Lower Tonkin, on the old

¹⁴ See above, p. 72-73.

¹⁵ *Bulletin des Amis du Vieux Hué*, April-September, 1937, p. 253.

¹⁶ Y. Henry, *Économie agricole . . .*, *op. cit.*, p. 565.

alluvial terraces, remnants of a worn-out delta, which often form but a thin layer over the rocky base, where the coffee plantations flourished best. They are found in two main groups: one west of Son Tay and Hanoi, and the other nearer the sea, west of Phu Ly and Ninh Binh. These areas are at low elevations—generally less than 100 meters—near the centers of local consumption and export, and close to an abundant labor supply.

At first, the colonists were misled about the ease of growing coffee.¹⁷ It required all the energy of the early colonists, who for the most part were pioneers of peasant stock, to persevere in their difficult task. Provided with limited capital and without experience in tropical agriculture, they worked indefatigably. In fact the soil was rather poor and was very easily depleted. Large-scale cultivation, involving the periodic removal of the plantation to some new burnt-over site in the forest—a technique frequently still practised in Brazil—was impossible here because of the scarcity of land suitable to coffee-growing in the back country; moreover, the hinterland, already widely denuded by the native mountain peoples, was too chilly. So the soil had to be fertilized. Green manure—*Crotalaria* and *Tephrosia*—was no longer adequate when the tree began to bear. Animal manure seemed the only solution to these Frenchmen. From that idea was born a new way of cultivating coffee, combining cattle raising with plantations. It was estimated that each plant required about 30 kilograms or a coolie-load of manure every two years, in other words, about 20 tons of manure a year for each planted hectare. So for each hectare of coffee trees there had to be from six to nine hectares of pasture land.

Thus the area under cultivation was limited by the number of cattle which could be raised—that is, by the size and quality of the pasturage, which was often very poor. Domestic cattle have been improved by cross-breeding with animals imported from western Europe or from the Sind; but disease caused heavy losses and, in addition, the cultivation of fodder grasses

¹⁷ A. Rome, "Aperçus sur la culture du caféier en Indochine française," in *Revue de Botanique appliquée et d'Agriculture tropicale*, 1935, pp. 525-534, 608-615.

was impractical because of the cost. At present, the production of a semi-artificial fertilizer is being perfected which will permit reduction in the herds; stable manure is only used to induce the fermentation of a much greater quantity of rice grass, thatch grass or elephant grass, which the coolies gather in the savannahs which are almost always found close to the plantations.

Climate has been another obstacle to the development of the coffee plantations. The blossoms were sometimes washed off by heavy rains; the maturing of the berries, which ripen over a period of several months and must be picked one at a time, can be thwarted by summer drought; in regions near the sea there is always the dreaded possibility of typhoons, and everywhere there is the damp cold of winter. Here the coffee plant is at the northern limit of its habitat.

From Tonkin coffee-growing spread southward across Annam, where it encounters less variation in temperature and consequently can be carried on at higher levels. Here also it benefits from better soil: small patches of red lands begin to appear south of Thanh Hoa and north of Nghê An in Phu Qui; they are found again in Quang Tri between Cape Lay and Ai Lao Pass, before they begin to spread out over the plateaus of South Annam. In Annam the two northern provinces of Thanh Hoa and Nghê An are still among the principal coffee-producing regions of Indo-China.

Only since 1924 have plantations been developed on the red lands of South Annam, at altitudes as high as 1,000 meters and sometimes even higher.¹⁸ Here the hot winds and scorching sun of the dry season are the dangers; as a protection special shade trees and wind-break trees are planted; the soil requires heavy fertilizers which form a large part of the plantation's costs (usually from 20 to 25 per cent). The plantations, many of which were established here by companies without sufficient experience, have sometimes had to be abandoned. For example, in Kontum, of 954 hectares planted in 1929, 350 were practically abandoned in 1930 and 1931.¹⁹ But since 1934 this cultivation has been taken up again

¹⁸ As early as 1902, however, a missionary established a coffee plantation in the shade of the deep forest between Kontum and Pleuku.

¹⁹ Henry, *op. cit.*, p. 567.

and at present coffee plantations occupy approximately 3,000 hectares on the Moi plateaus between Kontum and Djiring. The preparation of the product for the market does not require costly equipment, and therefore is more suitable than tea for small European plantations, many of which are less than 100 hectares in area.

Indo-Chinese coffee is highly regarded, and more acreage is planted to *Coffea Arabica* in the colony than to the coarser varieties such as *Excelsa*, *Robusta* and *Chari*, which are often grown elsewhere. These, however, are now gaining popularity on Tonkin plantations. The hazards of cultivation make production very uncertain; among the numerous parasites which attack the plant, the most dangerous is the borer, a beetle whose larva eats away the inside of the trunk. The 1920-21, 1925-26 and 1928-29 seasons, for instance, were particularly bad. On the whole, progress has been very slow, since total production from approximately 13,000 hectares was estimated at only 1,500 tons in the 1937-38 season. This is little enough considering the half-century of effort behind it, and especially in relation to French consumption. Protective measures adopted since 1931 have proved inadequate to compensate for increased production costs or to expand the market.

Most of the crop is sold locally, and the outlook for continued domestic consumption is quite encouraging. The prosperous native is now used to drinking coffee, and street vendors may be seen selling *café au lait* in the big cities. It is unlikely that Indo-China will become a large exporter of this commodity in the near future. On the other hand, the production of Indo-Chinese rubber and black tea either meets the demands of the mother country today, or will soon do so. European agricultural companies are soliciting official assistance for the development of coffee plantations, but here they run into competition from other French colonies which did not occur in the case of either tea or rubber.

TEA PLANTATIONS

Indo-China's tea is now in a better position than her coffee, even though the European tea plantations were established

later.²⁰ Far from being a newcomer to Indo-China, like the coffee tree, the tea plant has been indigenous here from time immemorial. Many wild varieties grow in the mountain forests at elevations as high as 1,800 meters. Their botanical classifications are only temporarily established for it is uncertain whether they are related to those of China or those of Burma and Assam. Certain varieties, such as the Chan tea plant can grow nearly fifteen meters high.

When the French first arrived in Indo-China, most of the tea crop came from trees cultivated by the natives in gardens adjoining their huts or on small plantations. These small native plantations were particularly numerous in Phu Tho and Yen Bay provinces in the middle region of Tonkin, and in Quang Nam province in Annam, on the edge of the delta.

The native tea grower employs primitive methods, at best only cultivating his plants two or three times a year. The harvesting itself is done carelessly, the plant often being entirely stripped except for the terminal leaves and buds. The tea which is not sold as soon as picked undergoes a crude drying treatment. The following method is still prevalent in Tonkin: after drying, which is done in large bamboo baskets and takes about 24 hours, the leaf is rolled by foot, a process which entails a high percentage of waste; fermentation is by guesswork and lasts from one to three hours. Then the tea is dried in the sun, or else over a charcoal fire (which gives it a disagreeable smell). In Annam, "the most common method of treating black tea consists in chopping the leaves and then pounding them in a mortar." In making green tea, young leaves are first dried and then "lightly roasted in a large earthenware pot over an open fire for ten minutes, during which time they are constantly stirred with bamboo rods. As soon as they turn greenish-yellow, they are put into a winnowing-basket and trampled under foot for a quarter of an hour. Following this they are spread out and dried in the sun for several days; with desiccation, the tea takes on a greenish-black color; it is then sorted and packed in bulk in reed

²⁰ G. Capus, "La production du thé en Indochine," in *Revue Économique française*, March and May, 1930; and F. Roule, "Renseignements sur les façons culturales dans les plantations européennes de thé en Annam," in *Bulletin économique de l'Indochine*, 1934, pp. 44-54.

baskets, ready for sale. For green tea, a yield of 25 per cent of the amount of wet leaf may be expected."²¹

Until recently almost the whole crop was intended for local consumption, the majority of the people having to be satisfied with inferior blends which resulted from a mixture of tea with other leaves. Wealthy families used tea imported from China. Thus European tea plantations seemed assured of a good return, since they could reasonably count on local outlets and, in addition, hope to supply the market of the mother country, as well as the even larger one in North Africa.

Some colonists tried to cultivate tea in Tonkin and around Tourane in the early days and the first shipments of Indo-Chinese tea to France were made in 1893. But both capital and experience were lacking to organize plantations for the production of black tea on a scale large enough to be suitable for European enterprise. Attempts at direct cultivation were abandoned everywhere and the colonists were content to try to better the processing of the product for export. Some French factories, established in Quang Nam in central Annam, were well-equipped and, by their high standards, contributed to some extent to the improvement of cultivation and picking on the native plantations. However, adulteration and fraud, practised by the Chinese middlemen in particular, seriously harmed the reputation of Annam teas in the European markets. Some Annam "teas" exported to France contained as many as 15 kinds of vegetable leaves wholly unrelated to tea.

It has been only since 1924 that large European tea plantations have been established in Indo-China. Like the new coffee plantations, these are located mainly on the South Annam red lands. There are seven of them, from 100 to 800 hectares in size. Four are in the provinces of Kontum, Pleiku, Darlac and Upper Donnai between 500 and 1,000 meters in elevation. Two are in the hills of Quang Nam at an elevation of less than 500 meters. The highest one, which produces a tea esteemed throughout Indo-China, is the *Arbre Broyé*, on an extremely hilly site on the eastern spurs of the Lang Bian mountains, at an altitude of from 1,400 to 1,500 meters.

²¹ Henry, *op. cit.*, pp. 582 ff.

There was no lack of capital and a great deal was needed. Dutch specialists from the Netherlands Indies had declared the region very promising. But conditions in Indo-China were not the same as in Java and Sumatra. In practice, the adaptation of foreign tea plants²² to the soils and climates of the Moi plateaus was not carried out without costly experiments and disappointments. The cost of production here was much higher than on the small lowland native plantations; the land had to be cleared, the soil protected against erosion by terracing, shade trees planted and cared for, reluctant Annamites induced to settle on the unhealthful plateaus which they disliked and big factories built to treat the leaf. However, the tea plant thrives in these soils if it is not injured during the first two years by northeast winds or by over-exposure to the sun during the dry season. The yield increases from the fifth to the tenth year, but proper care and sufficient fertilizer are necessary even though the soil requirements of the tea plant are less than those of the coffee tree.

The depression overtook the plantations during their infancy, before they were operating on a well-established basis. However, in spite of inevitable losses, the experiments were not in vain. A technique has now been discovered which makes successful cultivation possible at higher altitudes. The planning of an imperial economy is bearing fruit. By means of tariff protection and advertising, markets for Indo-Chinese tea have grown in the mother country and have been established in North Africa.²³ The quality and uniformity of the product have been improved by the institution of a rigid inspection at the time of its export from the colony, a regulation demanded by European plantations but which will also benefit the native planters.²⁴

²² In particular these are Assam varieties, the seeds of which were first bought from English and Dutch planters, but which are today grown and selected in Indo-China.

²³ See below, pp. 337 and 339.

²⁴ European tea plantations now cover approximately 3,000 hectares (2,500 of which are on the Moi plateaus). The picking of tea leaves demands a great deal of care—much more than coffee. The shoot (pekoe) and only two or three leaves at the tip of each branch are gathered. Most of the harvesting is done between May and December. The factories, modeled on those in Netherlands Indies, divide among their three

RUBBER PLANTATIONS

The rapid multiplication of *hevea brasiliensis* in the colonial countries of Southeast Asia has been phenomenal. A native of the Amazon, it was still wild half a century ago. There are few tropical crops which have demonstrated such natural adaptability and rapid increase; none shows more clearly the European's influence.

The development of rubber is the French planter's greatest success in Indo-China. There are many reasons why it has fared so well. In the southern part of the peninsula, the soil and climate are particularly well suited to the Brazilian tree. Moreover, since the plantations here developed rather late, they benefited continually from the experiments of the large neighboring producers in British Malaya and Netherlands Indies. Finally, since Indo-China was the only French colony where rubber cultivation was developed, without exceeding the mother country's demands, it profited by a commercial advantage which fitted neatly into the framework of the imperial economy.

Like most tropical countries Indo-China knew an era of native rubber harvesting. This rubber came from different sources in the forest or grasslands—trees, bushes and climbing vines in particular—which were subjected to destructive exploitation by the natives. European trading companies then collected the rubber at a few branch factories—for example, at Cua Roa in North Annam and at Luang Prabang and Vientiane in Laos. This native rubber production amounted to only about 150 or 200 tons a year in 1914, when rubber plantations first came on the scene. Plantations had already multiplied rapidly in Ceylon, Malaya, Java and Sumatra following the introduction of *hevea* seeds, which Wickham had brought back to Kew in 1877.

The year 1897 is generally regarded as marking the begin-

or four stores the whole series of steps necessary to the production of black tea: drying, rolling, sifting, fermenting, roasting, sorting and packing in aluminum-lined cases of laminated wood. In 1938 the European production of black tea on the Mei plateaus was 812 tons; a crop approximating 1,300 tons is expected by 1945. From an unpublished paper by Mlle. Marie Bouvier, presented at the Sorbonne in June 1939.

ning of rubber cultivation in Indo-China. In that year, Raoul, a navy pharmacist, sent 2,000 plants of *hevea brasiliensis* from Malaya, where he was stationed, to the Saigon Botanical Garden. In October 1898, 1,000 of these were replanted at the government experimental garden at Ong Yem in Thudaumot province, 200 were replanted on the grounds of the Pasteur Institute at Suoi Giao near Nhatrang in South Annam, and the rest were distributed to several colonists. Some seeds came from Ceylon, as well. At first there was not much interest in these experiments, notwithstanding the support of experts like G. Capus and Dr. Yersin. At best many persons regarded *hevea* as a useful shade tree for productive plants like coffee. One planter, however, persevered: this was Belland, chief of detectives at Saigon, who, beginning in 1898, had planted 15,000 rubber trees at Phu Nhuan, on the outskirts of the town. In 1906, the second year of tapping, he made nearly 100,000 francs net profit.

This success attracted other Frenchmen in Cochin China to the rubber industry.²⁵ Belland sold his seeds in old vermouth cases, and others were obtained from Ceylon, Java and Singapore. However, the rubber tree cannot be tapped until the end of the sixth or seventh year, so it was only in 1915 that the yield of the plantations exceeded that of the native rubber harvesters. Thenceforth it grew fairly steadily, increasing from 298 tons in 1915 to 3,159 tons in 1919, 10,309 in 1929 and 60,000 in 1938.

In Cochin China, the rubber tree found a climate well suited to it, that is to say, with only slight variations in temperature and an abundant annual rainfall of from one and a half to two meters. At first it was feared that the dry season, which lasts as a rule about five months, might have harmful effects on the tree. But in fact the tree has adapted itself well and this dry season seems to make it much less susceptible to certain diseases which affect it in countries of almost continual rains. It loses most of its leaves during the dry season

²⁵ See the *Annales* of the Syndicate of India Rubber Planters of Indo-China, in particular, the *Annuaire* of 1931, pp. 9-12. Thanks are due to M. Guillemet, President of the Syndicate at Saigon, for the additional information he was good enough to supply.

but does not remain bare very long—only for a fortnight on the red lands' plantations.

Climatic conditions strictly limit the rubber tree's habitat which is much smaller than coffee's or tea's. The most northerly plantation is at An Khê (14° north latitude) where the trees are stunted and the latex yield low. Other plantations are found on the Darlac plateau at an elevation of about 500 meters. But the majority, located in Cochin China and Cambodia, are no higher than 200 meters.

The rubber tree has been planted in very different types of soil. First, it is found in the "gray lands" which are composed of the alluvial residue of a former delta and are several meters above the level of the present Cochin China delta—the humid region where rice predominates. These gray lands are near Saigon and the most thickly settled regions of Cochin China, and have long supported a fairly dense Annamite population. Transport facilities and the existence of a permanent labor supply encouraged commercial agriculture here. The first rubber trees were often grown on land used for gardens or dry native crops, and later spread to uncultivated lands, covered only with rather sparse brush that was easily cleared. Thus the cost of improving the land was quite low.

These advantages were bound to attract small colonists and local companies with comparatively little capital—most of it invested by Europeans residing in Cochin China. As a result, a large number of plantations of less than 100 hectares are found within a radius of about 50 kilometers northwest, north and east of Saigon. Many of these were set up by Saigon government officials and merchants. Listed among plantation proprietors in the first Planters' Directory were pharmacists, clerks, architects, magistrates, registry officers and professors. A native overseer, called *cai* or *caporal*, was put in charge of cultivation. The necessary labor supply was obtained in neighboring villages. The landowner himself supervised the condition of his rubber trees and gave his orders once or twice a week. At the outset automobiles were uncommon; the tram or railway was used as far as the nearest station, and the plantation was then reached by bicycle or the small cart called "match box."

Actually, the gray lands vary considerably in quality. Often they have already been impoverished by frequent *rai* cultivation. A meager latex yield is the usual price paid for such ruthless denuding. Frequently the soil is sandy, unable to retain moisture and often barely covering a very hard stratum of laterite; it can grow only puny trees which, without fertilizer, yield no more than 200 or 300 kilograms of latex per hectare. Every type of soil, from the poorest to the richest and most productive, is found in the gray lands; but the best soil is usually quite far from Saigon and closer to the basaltic region where it is enriched by volcanic elements carried along by streams. Often it is covered by a very dense forest which has to be cleared at great expense, for labor is scarce here. These circumstances demanded more efficient methods of cultivation. By 1921, in the gray lands east and north of Saigon there were some rubber plantations more than 500 hectares in size (one, at Tây Ninh, covered 1,380 hectares) which were often owned by joint-stock companies, as they are in the red lands.

The red lands stretch between the Mekong delta and the sandy, barren, thinly forested plateaus of Cambodia and South Annam in a huge crescent 20 to 40 kilometers wide and lying southeast to northwest for about 300 kilometers. Although the agricultural potentialities of this region were suspected, cultivation here was much more of a problem than in the gray lands. The land was covered with a heavy growth of vegetation, sometimes a secondary forest of many kinds of trees, more often thickly growing bamboo. Access and communications were difficult. The Moi inhabitants—often still quite untamed—could not supply the necessary labor. Malaria rapidly killed off large numbers of Annamite coolies. Nevertheless, both the proved richness of the soil and the possibility of obtaining vast grants in this almost uninhabited region attracted capital.

The first large plantation in the red lands was established in 1905 at Suzannah, along the railroad being constructed from Saigon to Nhatrang, by one of the company engineers. In 1910 a Belgian capitalist named Hallet, who had had plantation experience in British Malaya and Sumatra, pros-

pected by ox cart in the basaltic hills of Hon Quan whose lofty, gently sloping peaks afforded choice though remote plantation sites; a ten kilometer square was marked off in the forest, near Loc Ninh, about 150 kilometers north of Saigon and quite close to the Cambodian border.²⁶ Other plantations were later established around Hon Quan, at Xa Cam, An Loc, Quan Loi and Xa Trach, the future domain of the *Société des Terres Rouge* (Red Lands Company).

By the end of 1921 the area planted to rubber trees in Cochin China was estimated at 29,000 hectares, of which about 20,000 were in the three provinces of Baria, Bien Hoa and Thudaumot, through which ran both the gray and red lands. The capital involved was valued at a minimum of 40 million francs.

This expansion was due largely to the initiative and capital of Europeans in Indo-China. The mother country's reluctance to invest in this development seemed justified when, in 1922, as a result of the development of Malayan and Netherlands Indian plantations, the average price of rubber, which had been 8s. 10d. in 1910, fell to 11 pence. But with the introduction of the Stevenson Plan, which artificially reduced production, the price promptly rose to 4s. 4d. in December 1925. Plantations which had been neglected for several years were cleared and again began to thrive. New ones were established not only in Cochin China, but in Cambodia at the northwest extremity of the red lands, where there were still many thousand hectares of tablelands untouched by erosion. These new ventures received much favorable publicity and this time, surrounded by a general atmosphere of speculation, French investors subscribed quite liberally to the new issues.

However, the irrepressible increase of production on the native plantations in neighboring colonies, especially in the Netherlands Indies, and the protective measures adopted by American buyers, brought about the abandonment of the Stevenson Plan in 1928 and, soon after, an abrupt fall in prices. This decline was accentuated by the depression which soon followed.

²⁶ The story is that the border was pushed back a little on this occasion.

Government support saved Indo-China's rubber industry.²⁷ Conditions were particularly hard on new plantations established after 1924 which, because they had not yet begun production and were unable to obtain new credit, were threatened with ruin. Loans were made from the reserves of the General Budget and were intended to assure the maintenance of the plantations.²⁸ But since even the plantations which were producing could only sell their latex below production cost, an indemnification fund was created by the Act of March 31, 1931. This was maintained by a special tax levied on French imports of raw and manufactured rubber, which permitted the payment to colonial exporters of bonuses which were to be reduced proportionately as the price of rubber increased.

Little by little, a new form of international regulation was worked out, the application of which—contrary to the Stevenson Plan—was to be controlled not by the producers alone but also by the manufacturers, and which led to the London Agreement of April 28, 1934. Under this agreement Indo-China had preferential treatment for, since its production still fell short of French needs, it was given the right to develop it without restriction up to 30,000 tons. It was not until 1936 that this limit was exceeded, and the surplus was then subjected to the so-called "restriction tax" which was paid to the International Committee. In this agreement, which was renewed in 1938 and runs to 1943, Indo-China's production quota was raised to 60,000 tons, the restrictions becoming applicable at the regular rate only after this figure has been exceeded. Until the time of writing Indo-China has benefited from international rubber control, which has raised prices. The export bonus was abolished in April 1934, and the planters have since repaid a large part of the loans advanced by the government.

In 1938, for the first time, Indo-China's rubber production equalled French consumption (approximately 60,000 tons). A recent decree, ratifying the resolutions of the International

²⁷ The 1921 depression had also been overcome by means of a government subsidy.

²⁸ See above, pp. 172-173.

Committee, authorized the planters to increase their acreage in 1939, up to five per cent of the planted area; these authorizations are transferable. It is expected that by 1943 Indo-China's production may reach 100,000 tons.

The total area planted to rubber in 1937 was about 127,000 hectares, of which 98,000 were in Cochin China (about half of them on the gray lands), 27,000 in Cambodia where there had been only 18 hectares in 1921, and only 1,700 in Annam. This is almost the same as in 1931; international regulation had prohibited any new planting up to 1938, except for very small tracts for nurseries or experimentation. The increase in yield is accounted for by the coming into production of areas planted before 1931, and by the greater volume of latex obtained through the replacement of old, worn-out trees by young ones grown from buds or from selected seeds.

There were 1,005 plantations.²⁹ Among them 304 comprised more than 100 acres (40 hectares) and represented 94 per cent of the total area under rubber; they included 154 with 100 hectares or more, 123 between 100 and 1,000 hectares, 27 between 1,000 and 5,000 hectares, and four exceeding 5,000 hectares. Sixty-eight per cent of the planted area was owned by 27 companies. Only six per cent of the total area remained for small plantations—those of less than 40 hectares; the average size of these small farms was about 11 hectares.

The large plantations of 200 hectares and more produce almost all of Indo-China's latex. The distribution of land described above does not, however, adequately indicate the extent of the concentration of capital which characterizes rubber cultivation. Often the big joint stock companies own many plantations; moreover the companies themselves are either financially interrelated or dominated by holding companies. Some also operate other types of plantations, such as tea or coffee, as well as non-agricultural enterprises in Indo-China or in neighboring countries.

This monopolistic tendency is certainly not peculiar to Indo-China, but it seems to have developed further there than say, in the two largest rubber-producing countries, British Malaya and the Netherlands Indies, where the natives partici-

²⁹ *Bulletin économique de l'Indochine*, 1937, pp. 139-145.

pate more fully in rubber production.³⁰ The Indo-Chinese system seems conducive to improved methods and increased yields.

The most powerful of these groups is the *Société Financière des Caoutchoucs*, the capital of which is principally French and Belgian. This company also controls plantations near Medan in Sumatra, in British Malaya and in tropical Africa.

Methods of cultivation have changed considerably in the past 30 years. "In general the Indo-Chinese planter followed the example of his Dutch and English neighbors, with certain modifications, however, in order to accomplish on a scale of 1,000 to 10,000 hectares what his neighbors were doing on a scale of 100 to 1,000 hectares."³¹ In Malaya plantations were at first set out on completely cleared ground which was weeded every year. This was known as "clean weeding, which was the result of a theoretical transposition into a tropical setting of the large-scale cultivation methods employed in temperate lands" (Yves Henry). Thus constantly exposed to sun and erosion, the soil deteriorated rapidly. Startling evidence of this can be seen in the ruins of many Malay plantations near Singapore.

The practice of clean weeding was not widespread in Cochin China. After the first clearing, which was generally done by mechanized equipment, many planters preferred to confine their annual weeding to the strip about one meter wide in which the trees were planted; thus the soil was better protected, and at the same time labor was saved. Since the land is usually level or only slightly undulating, there is less

³⁰ In British Malaya plantations of less than 40 hectares represent 39 per cent of the total and plantations belonging to Asiatics (Chinese, Indians and Malaysians) represent 54 per cent. See Soliva, "Vues économiques sur la production du caoutchouc," *Bulletin économique de l'Indochine*, 1931, A-3.—*Rubber Statistics Handbook*, 1938, Singapore. Fifty-three plantations have an area of 5,000 acres (2,000 hectares) or more, of which 47 belong to Europeans. The latter have a far greater proportion of the plantations exceeding 500 acres (200 hectares) than the Asiatics; but among plantations of 100 to 500 acres (40 to 200 hectares) the preponderance of Asiatics is very great. In the Netherlands Indies the rubber produced by natives is about 50 per cent of total exports, *Indisch Verslag*, 1937, Batavia.

³¹ P. Michaux, *L'hévéaculture en Indochine, son évolution*, Paris, 1937, p. 14.

danger of erosion here than in Malaya. Nevertheless, in Cochin China small dikes were cut forming a complete network over the plantations, helping to prevent erosion. These expensive dikes were usually covered with vegetation, which sometimes consisted of subsidiary crops such as Robusta coffee or sugar cane which had the added advantage of bearing before the rubber tree which begins to produce only several years after planting. Then, following the Dutch example, it became common practice to use a covering of low-growing leguminous plants which were supposed not only to destroy wild grasses such as "tranh" (*Imperata cylindrica*) but also, after plowing under, to serve as green manure. Since these leguminous plants spread fast and exhaust the soil, it is now recommended by some that "a habitat as similar as possible to the original habitat of the rubber tree be restored to the plantations, that is to say, forest undergrowth."³² There is also a tendency to revert to close planting on the Sumatran pattern, according to which from 400 to 500 trees are planted on each hectare; these are thinned out later on by removing the poorer trees. Cultivation is generally limited to weeding or light plowing, intended especially to keep the "tranh" grass from spreading. Organic and chemical fertilizers are not yet used very extensively; they have been employed, however, to rejuvenate some of the older plantations, especially in the gray lands.

The greatest progress in rubber cultivation in recent years has resulted from the application of scientific methods of selection. This was primarily the work of the Dutch, and particularly of the experts working for the well-known Planters' Association (A.V.R.O.S.) of Sumatra's east coast. After a period of uncertainty and setbacks, the reproduction of selected rubber trees by grafting produced new stock, or *clônes*, which were imported at great expense to Indo-China and have increased yields. A good part of the red lands has been replanted with buds, which accounted for 35 per cent of the total area of rubber plantations in Indo-China at the end of 1936—a proportion not approached in any other country. Grafting, however, has some serious disadvantages; it

³² Michaux, *op. cit.*, p. 18.

makes weak trees with "elephants' feet" which have thin and fragile bark and offer poor resistance to wind storms. There is some question whether budded trees, whose yield is higher, will have as long a life as the non-budded variety. Some believe that if it is necessary today to remove rubber trees planted thirty years ago, it is because they were maltreated in the beginning by over-tapping. New planting and replanting will undoubtedly consist, as in the Netherlands Indies, not of buds but of stock raised from selected seeds. Some large Indo-Chinese companies now produce their own *clones* and select their own seeds by carrying on artificial fertilization from time to time.

Tapping methods have also improved. In the beginning, tapping was done with a chisel and a knife, cutting a series of spiral grooves encircling the trunk; sometimes a herring-bone pattern was used to drain the largest possible surface. This severe treatment was hard on the tree and the bark grew back slowly. Following the example of its neighbors, Indo-China soon adopted a more conservative practice. Tapping on alternate days in periods of varying length was substituted almost entirely for daily tapping. At first tapping was usually performed, in half-spiral incisions, every other day. Nowadays on many plantations the tree is left completely undisturbed during part of the dry season, at least during February and March, whereas the months from November to January, when the yield is largest, are the periods of most frequent tapping. This plan makes it possible, for example, to cut complete spiral incisions in the tree every four days, and results not only in preserving the tree but in reducing labor costs perceptibly.

The tapping is done very early in the morning, since the trees secrete their latex more freely before the extreme heat of the day. Each tapper has his allotment of trees—generally 150 to 200. Later the cups are collected from the trees, the process being completed by about eleven o'clock, as a rule; sometimes, however, especially during the months of heavy yield, a second collection takes place in the afternoon. The cups are emptied into buckets which are taken to the factory. Since this removal process must be rapid—latex ferments very quickly—large plantations are divided into sections, each one

having its receiving station where trucks with metal tanks come to pick up the latex. At the factory, the liquid is poured into vats, combined with a certain proportion of water in order to get a uniform mixture, and then decanted into aluminum troughs where it is coagulated between regular partitions by the addition of acetic or formic acid. Coagulation usually takes place in the afternoon and at night. The next morning, trembling and very white like curdled milk, the slabs are removed from the partitions, and then pass through a rolling machine; later they are dried in smoke-rooms before being sorted and packed for shipment.

This is how high-quality or "sheet" rubber is produced. Crêpe rubber, of which there are many different grades, is made from impure latex containing foreign matter, as, for example, the latex which collects at the base of the tree or the strips adhering to the bark which are cut off by the coolie when he taps the tree. This material is chopped up, washed and rolled out by machine. Because it employs a substance already coagulated before its arrival at the factory, crêpe rubber can be made at any time of day while rolling out the sheets only takes part of the morning.

There are various types of rubber factories, ranging from the workshop of the 100-hectare plantation, with its small trough and crude rolling-machine, often set up in a shed, to the modern ones on large estates. Some of the latter, producing up to twenty tons of rubber a day, are among the best equipped in the world. All of the partitions of the coagulation troughs are raised simultaneously, by a mechanical lifting system. English and American-made rolling mills discharge a continuous strip of rubber which an operator cuts into the required lengths. Electric power is supplied by motors driven by fuel oil or *gaz pauvre*. The rubber is cured by smoke from a special kind of wood which often has to be brought from considerable distances. Hydraulic or electric presses compress the sheets before packing. Every day the floor and all the machinery are thoroughly washed. The handling of latex requires meticulous cleanliness and in this respect a rubber factory is comparable to a modern dairy.

Usually the factory is located at the center of the large plantation. Some distance away are the offices and laboratories, their walls hung with maps and graphs. Samples of the products and collections of selected seeds are displayed in glass cases. Files of documents, including the reports which the manager regularly sends to his head office, are kept in cabinets. The Europeans—manager and assistants—live in bungalows which are usually provided with modern plumbing and are sometimes even luxurious. Where the country is rolling, these homes are built on hills; around them the forest growth has been replaced by gardens with lawns and flower beds. They overlook the dense plantings of rubber trees set out in symmetrical order in striking contrast to the wild forest.

On many estates, especially those of small and medium size, ox-carts are used for transport. But the large plantation has roads, carefully laid out and well maintained, which can carry heavily loaded trucks. These roadways, brick colored in the red lands, are straight as a die in some places and in others they wind through the close network of the rubber trees. At first the trees were planted in quincunx patterns, which make some sections look rather irregular now that the poor trees have been removed. But on the whole the rows are very regular. In the morning the flecks of sunlight which filter through the trees lend a touch of gaiety to the plantations. But later in the day an air of melancholy gloom settles on the endless rows of broad-based gray trunks, with black bands of coal-tar covering old scars and small cups to catch the latex. Here the hevea is not the mighty tree of the Amazon forests. Thirty-year old trees which grow more than 20 meters tall, are rare in Indo-China. "Sometimes the trunk rises straight . . . and spreads its main branches at a great height; sometimes, on the contrary, it is short and stubby with only two or three big boughs a few meters from the ground; then again, it may be conical like a pepper-shaker."³³ The landscape lightens only in stands of young trees—slips just out of the nursery, scarcely visible in the holes prepared for them among the

³³ M. Debeauvais, *Extrême-Asie*, special number on rubber cultivation, January 1927, p. 241.

stumps of dead trees—or where the trees are only a few years old and have slim trunks and young and scanty foliage. Occasionally the road suddenly emerges upon a coolie village.

LABOR SUPPLY

Up to about 1918, the labor supply for European colonial agriculture was a fairly simple problem. The Tonkin and North Annam plantations usually located on the deltas' edge, found a ready supply at hand. Moreover, it was easy for the small estates in the gray lands of Cochin China to find in nearby villages the coolies needed for the maintenance and cultivation of a few thousand rubber trees.

However, with the further extension of cultivation in the gray lands and in the red lands as well, it soon became apparent that the local labor supply would not suffice. To be sure the *Annuaire des Planteurs* announced in 1922 that "the Moi were flocking to the plantations in great numbers," and that they were "hardened, honest and disciplined workers." Experienced in *rai* cultivation, they excelled at clearing the land and, because they were acclimated, they were better able than the Annamites to withstand malaria. Consequently, the Moi were used whenever possible, and were responsible for almost all of the work involved in opening plantations in the South Annam and Cochin China red lands. Nevertheless, they are unreliable, and will usually work only a few days at a time, or even want to return each night to their villages, which may be quite distant. Mention should be made, however, of a rubber and coffee plantation, near Ban Me Thuot, where the laborers are mostly Moi; the manager is especially proud of having trained a crew of Moi tappers. This is an interesting case, but it is an exception. Many colonists who have employed Moi claim that they can be trained to be efficient workers, and this seems quite likely. Even in the Moi country, however, they usually form only a minority of the employees.

The labor supply is chiefly Annamite. Before 1918, following the example of plantations on Phu Quoc Island, some large companies in Cochin China had employed Javanese coolies, regarded as experts in the art of rubber tapping. But it was soon recognized that Annamites would excel in this

work, and since there were not enough of them in Cochin China for the increasing plantations, they had to be brought in from the north. Natives from the Annam deltas were the first to be used. Even today, one large plantation in the province of Bien Hoa almost exclusively employs Catholic Annamites, natives of Quang Tri to the north of Huê. The Annamites from Central and South Annam still meet the requirements of the European planters who have settled on the Moi plateaus since 1925. But at that time the Cochin China plantations were already employing a rather large proportion of coolies from the deltas of North Annam and Tonkin.

In 1921 the largest European plantation was the Loc Ninh, owned by the *Société des Caoutchoucs de l'Indochine*; it employed 1,700 Annamite, Tonkinese and Javanese coolies. Next in size were the three Hallet plantations: Xa Cam, An Loc and Quan Loi (the future center of the "Terres Rouges" Company) with 1,150 coolies, almost all Tonkinese. Some Annamites from Tonkin were found on other estates, but they were undoubtedly less numerous than those from Annam and Cochin China. The largest plantation in the gray lands, that owned by the *Société des Hévéas de Tây Ninh*, was able to muster the 400 to 500 workers it needed from the surrounding countryside. The number of Tonkinese coolies on the Cochin China plantations probably did not then exceed 4,000. It was in subsequent years that the opening, one after another, of new plantations in the red lands caused a growing influx of migrants from afar which reached a maximum in 1927, with 17,606 registered arrivals, the very great majority coming from Tonkin and North Annam.

On October 31, 1938, the General Labor Survey listed 17,022 Tonkinese and Annamites from Annam working under contract on the rubber plantations of Cochin China.³⁴ The companies in the red lands are still the largest employers of Annamites; in Thudaumot province there are 2,152 of them at Loc Ninh, 1,445 on the Dau Tieng (Michelin-owned) plantation, and 5,280 on the "Terres Rouges" group near

³⁴ There were, in addition, 10,868 on the red lands of Cambodia in May 1938.

Hon Quan (Quan Loi, Xa Cam and Xa Trach) where they still make up almost the entire labor supply.³⁵

Before 1924 plantation coolies were either laborers hired in neighboring villages, or recruits from more or less distant places. The planters had to guard against the desertion of the latter. The law permitted the local authorities to arrest deserters, who could be convicted and brought back under guard to their employer. The act of running off with a cash advance was regarded as embezzlement and severely punished. After 1924 the plantations demanded a much larger number of migrant workers, and since recruiting had entailed some abuses, supervision by the authorities was made stricter and more detailed. A uniform hiring procedure, called the contract system, for coolies recruited from the north, explicitly set forth the obligations of employer and employee.³⁶

At present the vast majority of the Annamites from Tonkin and Annam employed on the rubber plantations in the red lands are subject to this contract system. It is, however, considered by the government as a temporary arrangement only, to be replaced by a system of "free" labor, which would still be subject to governmental control. Already it has been noted that some of the northern emigrants ask permission to remain on the plantations after the expiration of their three-year contracts with the guarantee that the employers will repatriate them eventually.

It is surprising that such requests are not more numerous,³⁷ since the living conditions of the coolies on the plantations are very much improved and sometimes even seem excellent when compared to the standard of the Tonkinese peasant in his village. Improved health and sanitary conditions on the plantations have considerably reduced the dangers of diseases which, with malaria in the lead, caused serious losses among

³⁵ In the Cambodia red lands, the Chup plantation employs the largest number of contract laborers, 2,166 in May 1938.

³⁶ See above, p. 78.

³⁷ According to the *Labor Survey*, about 31 per cent of the contract laborers from Tonkin and Annam asked to stay on the plantations in the red lands of Cochin China at the expiration of their three-year contracts at the end of 1938. Of these, 24 per cent were re-engaged for one year and seven per cent stayed as free workers.

the workers when the red lands were opened up. Gangs of coolies from the lowlands melted away in a few months and it was even thought that these red lands emanated deadly fumes. In 1927 the battle against the anopheles mosquito was undertaken in earnest by the large plantations. One of them even sent one of its engineers to Malaya in order to study the technique of anti-malaria drainage. Plans for temporary and permanent improvements were prepared in collaboration with the Pasteur Institute and speedily carried out. At the opening of the An Vieng plantation in Bien Hoa province in 1927, a force of 502 workers suffered the appalling losses of 27.4 per cent sick and 26.29 per cent deaths; sanitation and drainage works were started in 1929, and in 1931 out of a total of 579 workers only 8.7 per cent were sick and not a single death was recorded.⁸⁸

Regardless of how much of the rapid decrease in malaria (which is responsible for 80 per cent of all illness in the red lands) has been due to the standstill in plantation development since 1931, the results of preventive measures have certainly been great. Foremost among these measures has been the devising of drainage systems. The red lands are crisscrossed by a rather close network of small watercourses, *suoi*, with irregular, often very slight gradients; water collects in the hollows where it is fed by constant seepage. These watercourses have been cleared and straightened; drainage ditches were systematically cut around the hollows and carefully maintained so as to reduce to a minimum the accumulation of watery breeding places for the dangerous anopheles. Remaining water surfaces are sprinkled periodically with gasoline, fuel oil or Paris green.

Moreover, medicines with a quinine base are distributed to the workers. Villages are usually established at the center of a drained basin or else on an elevation at least 800 meters away from any mosquito haunts. Until recently the red lands

⁸⁸ In 1927, according to official data, the mortality rate on all plantations was 5.4 per cent, or about double the average rate for Cochin China—and this applied only to adults in the prime of life. After 1929 it was reduced to 2.8 per cent. E. Delamarre, *L'émigration et l'immigration ouvrière en Indochine*, Hanoi, 1931, p. 20. Dr. Morin, *Entretiens sur le paludisme*, p. 158.

coolies lived in long buildings called *trai*, dozens of them sleeping side by side in stalls. These mass shelters soon will have disappeared entirely. Nowadays companies provide their workers with clean and sanitary houses. The first of these were built, native fashion, of light mud and thatch; today many are built of thick, rough cast plaster. Each house is separated from the next by a yard and a small garden. The village—there are several on the large plantations, each housing from 300 to 500 coolies—often has its own little church and pagoda, a school with a teacher who is paid by the company, a theatre where traveling companies perform from time to time, a playground, infirmary, a washhouse-laundry, and a well or spring of drinking water. Sometimes there is also a well-built and equipped hospital, with a maternity ward, under the supervision of a European doctor. Rice is furnished free by the company or sold at cost. Native tradesmen, whose prices are controlled, are found near the market-place.

Some of these villages are decorated with fruit trees, flowering vines and vegetable beds. But this is rather uncommon in the red lands, where the village is usually unadorned and the monotonous regularity, lacking in imagination and attractiveness, makes a rather dismal picture. These are not villages of families. Each house is usually occupied by three or four unmarried coolies, between 20 and 30 years old, and a woman who does the cooking, and who may or may not be the wife of one of them. At present, about 20 per cent of each group of emigrants from the north are women; the planters do not want the number increased, because it is difficult to find work for them. The husband, however, often redeems his wife's contract so that she can devote herself entirely to household duties.

Of 28,000 Annamite contract laborers from Tonkin and Annam who were in the red lands at the end of 1938, only 3,500 were women. This proportion clearly accounts for the instability of the labor supply with which planters on the Moi plateaus also have to contend. At the expiration of their three-year term some coolies renew their contracts or remain as free laborers. But this prolongation of their stay is often the result of a lack of funds. In spite of all precautions, the

worker is often the victim of his own shiftlessness and love of gambling. His wages, part of which was, until recently, often stolen from him by the overseer or recruiting agent, are now paid directly to him, regular deposits being made to a savings account. But pretexts for borrowing are still numerous, and at the expiration of the contract his savings often prove insufficient to pay his debts. The majority of the coolies, however, are still sent back to their villages at the end of their three years. Even during the life of the contract there are still frequent desertions, though far fewer than formerly. Miserable as was his life there, the man from the north is still homesick for his native village. The discipline of the plantations depresses him. The surroundings, even though more healthful, are offensive to him. He cannot get used to the forest or the mountains which hem him in on all sides; he longs for the day when he will see them no more. There has been curious proof of this state of mind. When, for example, the *trai* were pretty generally replaced with houses, the coolies were extremely reluctant to abandon the collective dwellings which they knew were temporary. It seemed to them that their new one-family homes were traps which would keep them against their will in this land of exile.

It is true that a certain number eventually settle in Cochinchina. But this number is still small and increases very slowly. Here and there attempts have been made to settle the immigrants more permanently by giving them patches of land where they grow food crops such as rice, corn and manioc for themselves, or coffee and pineapples for export. It is usually possible to set aside for this purpose a certain section of the grant, either adjoining the plantation or even in the clearings, where the soil is more suited to these crops than to rubber. These experiments have been small and are still too recent to have proved their success. The Europeans who manage the large plantations are themselves only visitors in the country and, in the opinion of many, the concerns which they direct can be successful only if assured of a continuous turnover of Tonkinese labor.

CHAPTER VI

CHANGES IN NATIVE AGRICULTURE

On the basis of the area occupied, the total value of production and the number of individuals directly interested, European lags far behind native cultivation. Native agriculture will be discussed only briefly here since it has been dealt with in the study by P. Gourou, and also because it still depends largely on traditional methods of cultivation which need not be considered directly in the present work. However, two important accomplishments of French intelligence and application should be noted. The first is the expansion of the rice plantations; and the stabilization of their yields; the second is the development, within the native family economy, of new crops which have enabled the Indo-Chinese to improve their diet and given them a greater share in export trade.

IRRIGATION ON RICE PLANTATIONS

Rice production in Indo-China varies considerably from one year to another, chiefly because of the irregular rainfall so characteristic of the tropics. In 1926, 2,741 millimeters of rain fell at Hanoi, and only 1,275 millimeters in 1915; in 1908, 2,718 millimeters fell at Saigon compared to 1,571 millimeters in 1918. The rice crop is also adversely affected by the very uncertain distribution of the rainfall. In the Red River delta until recent years *floods, aggravated by an inadequate system of dams, proved as harmful as droughts*. On the other hand, in the plains of the lower Mekong River droughts were the more disastrous, for here the lateness of the monsoon season quite often hinders sowing and transplanting, and the rains, postponed until August, can be either too sudden or too protracted. Typhoons endanger harvests in the Annam delta more often than elsewhere.

On the whole, however, it is not only in the rice fields that irrigation works have proved useful. Remarkable progress in

various lines has already been achieved from one end of the peninsula to the other.

Drainage Work in Cochin China

The great importance of the canal system cut in the Mekong delta to colonization and the development of means of communication in Cochin China has already been discussed.¹ By encouraging settlement and facilitating the transport of paddy to Cholon and Saigon, these canals have been the decisive factor in Cochin China's progress. Table 17 indicates the relationship between the extension of the cultivated area and the increases in rice exports and in the country's population.

TABLE 17
INCREASE IN AREAS PLANTED TO RICE, RICE EXPORTS, AND
POPULATION IN COCHIN CHINA

	1880	1900	1937	Increase, 1880 to 1937 (per cent)
Area cultivated (in hectares)	522,000	1,175,000	2,200,000	421
Rice Exports from Saigon (in tons)	284,000	747,000	1,548,000	545
Population of Cochin China	1,679,000	2,937,000	4,484,000	267

Considering the average yield of the rice plantations in Cochin China and the changes effected by new farming methods, the results are not so impressive. But this is not surprising—first things came first. Immense marshy expanses had to be improved, men settled there, shipments to the port of Saigon increased, and compensation for all these heavy expenses obtained as rapidly as possible through sales of land and, particularly, through increased receipts from various duties and taxes following the improvement of the land. Indeed, the expansion of rice-growing in the Mekong delta has been immensely beneficial to all Indo-China; Cochin China, for instance, complains regularly of having to pay excessive contributions to the general budget as a penalty for its relative prosperity.

¹ See above, p. 109 ff.

However, the strictly agricultural function of these canals remained subordinate, although it was thought that the landowners would be able to make use of them speedily. By cutting branch canals at rather little expense they could, it was said, extend right into the heart of their plantations the beneficial effects of the changes of water level resulting from the tides flowing up the big canals. The elevation of the Cochin Chinese plain is seldom as much as two meters—which is the height of the China Sea's highest tides. Only sand bars, called *giong*, resulting from the land's continual encroachment upon the sea, and the ridges deposited by river floods along natural watercourses, rise above this level. These slight eminences explain the existence, prior to human occupancy, of relatively depressed areas—hollows from which water left by rain or flood empties only with the greatest difficulty.

The construction of adequate rectilinear canals immediately facilitated both transport and drainage. For example, northwest of My Tho, flood conditions previously had lasted from two weeks to three months, the depth of the water varying from sixty centimeters to one meter, sixty centimeters. Now, since the construction of the canal uniting Arroyo Commercial with Song My Tho, they last only one day; in his field surrounded by little dikes the peasant can easily regulate the water level necessary for his grain. Elsewhere, lands which had been flooded in the rainy season and entirely dry during the rest of the year, benefit from the changes in water level resulting from the tides, whose height varies from .50 to 2.00 meters.²

The advantages of these changes in water level should be extended to a large part of the Cochin China delta for they are a sort of natural regulator which would make it possible, merely by operating rudimentary floodgates, either to remove excess water at low tide or to irrigate during flood tide.

Actually these water level changes as yet benefit only a small number of rice plantations located along the main canals. The construction of secondary and tertiary canals lags well behind that of the principal ones, which is like a circu-

² Y. Henry, *Documents de démographie et riziculture en Indochine*, Hanoi, 1928, p. 59.

latory system lacking the smaller arteries and capillaries. Most of the rice plantations in Cochin China are not really irrigated. The upper part of the delta, around Chau Doc and Long Xuyen, is exposed to the floods of the Mekong which are often severe and necessitate the cultivation of wet rice with a mediocre yield. Elsewhere the farmers must usually depend on rainfall.

Although usually sufficient for an annual rice crop, the rains are very irregular. Moreover, even in regions of heavier rainfall than Cochin China, the rains do not permit easy drainage of the land, nor the uninterrupted flow of water which irrigation produces and which is so beneficial to the rice crop. The value of fresh water irrigation is even more apparent in the alum lands. This type of soil is found throughout the delta, but chiefly in the coastal regions where, during the dry season at least, only salt water flows in the rivers and canals. This sea water has to be kept out of the fields as far as possible by the construction of small dikes.

The network of large canals in Cochin China, the result of a crying need, is now almost completed, but it must be supplemented by a whole series of less ambitious systems—secondary and tertiary canals, dams and gates—suited to varying conditions and calling for an intimate, detailed knowledge of local conditions, and carried out within the limits of the district or even the village. The real need, in Cochin China as in the other parts of the colony, is for small irrigation works constituting what is officially called "aid to rice-culture."

Irrigation in Tonkin and Annam

In the overpopulated deltas of Tonkin and Annam, irrigation works are even more urgently needed than in Cochin China, but their construction presents extremely difficult problems because of this very overpopulation. In these deltas the task is not one of making uncultivated and practically uninhabited lands usable by digging wide ditches straight through the *tram* forest. The engineer's work is not so simple. The cultivable land is already almost all in use; the peasants grow rice wherever they can. Any improvement programs will

have to regulate and increase the yield; to do so they must, wherever possible, enable the peasants to control the water level on their rice plantations throughout the year.

The Annamite is not unaware of the advantages of irrigation. He spends much time and labor in bringing to his field, by very primitive means, the water his rice requires throughout its growth. Yet the watering of crops by means of swinging scoops of rope-hung buckets, a constant feature of the Tonkinese countryside, does not enable the native farmer to make use of all the available water. Thereby he provides his rice field with little more than the meager supply afforded by natural or artificial ponds, or perhaps by arroyos fed by the local and often inadequate rainfall. The water, laden with gray or red silt, which the rivers carry from the mountains of the interior, is allowed to reach the sea without any benefit to agriculture. At the same time it is necessary to guard against sudden floodings of these rivers which could ruin the crops over a wide area.

Following the example of the Chinese, the Annamites of Tonkin and North Annam confined the delta streams between high dikes which did much to complicate the problem of irrigating fields with river water. Even before French intervention there had been a good deal of discussion as to the usefulness of dikes. Those who advocated their destruction had maintained that, if allowed to flow unhindered, the flood waters would furnish the delta lands each year with the water and fertile silts which they lacked, thus removing a costly item from the government budget and an excessive burden from the people. These views were utopian, however, and showed little understanding of conditions. The entire way of life of the Annamite in the northern deltas—the location of villages, the distribution of land, the agricultural calendar—has been based for generations on the existence of dikes. Their destruction would bring catastrophe upon the people.

The dispute was settled several years ago. Instead of being removed, the system of dikes has been steadily improved and extended. The embankments were often built too near the rivers in order to allow the cultivation of the greatest possible area, and this resulted in curves that were dangerous in flood

time. These outlines have been corrected and the breaks filled in. The earthen embankments have been made wider, higher and more solid by means of an admixture of rocks at the most crucial points and by reinforcing the foundations with tamped clay.³ The big dikes, which also serve as roads, and behind which huddle the villages, are an inseparable part of the landscape of the deltas north of Port of Annam. There is nothing comparable in Cochin China, where huts and gardens line the banks of the streams which have been altered only slightly here and there. The broad waters of the Red River make a striking picture in summer as they flow between the dikes above the plains which, near Hanoi, are more than ten meters below them.

It was possible to build modern irrigation systems only within the framework of the dikes.⁴ Careful preliminary surveys were necessary, as well as an exact knowledge of the rainfall and volume of water in the rivers. Large-scale maps were prepared on a scale of 1:25,000. It was not until 1905 that actual construction was begun. Work was first undertaken in the relatively high country in the upper part of the Tonkin delta where it was possible to use the rivers while they were still quite small. The Kep canal system, affecting 7,700 hectares, was laid out between 1906 and 1914; the Vinh Yen, 17,000 hectares, was built between 1914 and 1922; and the Song Cau, 28,000 hectares, between 1922 and 1938.

Each system included a withholding dam, a main canal to bring the water (which in the *Song Cau* system is used for navigation as well), secondary canals or arteries, and tertiary canals or small arteries, all of which brought water to the rice fields by gravity alone. In 1928 another method was adopted on the Red River itself at Son Tâý, where the water is raised five meters by a newly electrified pumping station and is then distributed downstream by canals to some 10,000 hectares.

In 1931, attention was directed to the improvement of the

³ The dikes of the Red River were considered completed in 1937. Following the disastrous floods which were experienced north of the delta in 1936 and 1937, the dikes in the Song Thai Binh basin are being reinforced.

⁴ Bigotgne, "L'hydraulique agricole dans le delta tonkinois," in *Bulletin économique de l'Indochine*, 1938, pp. 268-293, 486-515.

large checkerboard which covers almost the entire Tonkin delta. This pattern is formed by the dikes paralleling the Red River's divergent branches and the transverse streams, such as the *Canal des Bambous* and the *Canal des Rapides*, which isolate each section like bits of cloisonné. The aim was to put an end to this isolation without increasing the risk of floods, by keeping sea water from coming upstream with the tides while still benefiting as much as possible from the changes in water level produced by tides. Within this checkerboard it was decided to dig a network of canals, which would either carry off excess fresh water or bring in water for irrigation. The latter would be brought in through openings cut in the peripheral dikes and framed in solid masonry, while the former would run out through gates either opened at ebb tide or emptying into streams whose level was artificially lowered.

This is the arrangement used in the districts of Thai Binh North and Thai Binh South. At present, work is in progress south of Hanoi in the Ha Dong-Phu Ly district, which covers 110,000 hectares between the Red and the Day Rivers. A movable dam 260 meters long has been built across the Day in order to cut the flow of water between this branch and the Red River during high water and thus, by draining rain waters off lowlands which were formerly flooded, ensuring the tenth month harvest. Irrigation for fifth month crops is to be furnished by a catch basin which will collect the waters of the Red River above the district.

Areas in which irrigation systems have been completed or nearly so cover 250,000 hectares. More than 500,000 hectares, in other words almost all the rest of the Tonkin delta, may see its yields increased by similar projects, either intended for irrigation alone or, more frequently, providing both irrigation and drainage. In Annam, dams and canal networks provide gravity irrigation for some 90,000 hectares in several deltas, in Thanh Hoa and Nghê Tinh in the north, both of which are dangerously overpopulated—particularly the latter, and in the Phu Yên and Phan Rang in the south. Comparable systems are under construction or projected in North Annam in Quang Nam and Quang Ngai.

Moreover, since 1935 it has been decided to increase the number of small irrigation systems in Annam since the countryside there is better adapted to them than anywhere else in view of its many divisions and subdivisions. "Nothing that can assist rice growing is overlooked; there will be dikes to protect 100 hectares and others to protect 10; troughs will be built to improve small tracts; the brook's course will be straightened; small reservoirs will be built for certain sections of the villages . . . there is a definite, untiring program of close collaboration with the peasant."⁵ Simple, cheap lifting apparatus, such as chain pumps, screw elevators and capstans, capable of greater output than the traditional tools, have been perfected and will be widely distributed.

Finally, in Cambodia's Battambang plain, often subjected to severe droughts, the flood waters of the Mongkolborey River have been made to irrigate the Bovel sector.

It seems clear that great irrigation projects are a fundamental factor in improving the productivity of Indo-China's soil in the struggle against overpopulation. The undertakings are impressive not only in scope but in the construction work involved, the area they cover and the funds invested. At first they were regarded with skepticism by the people, who distrusted the transformations so suddenly imposed on their native land. The peasant had to be completely won over before he could be induced to use the valuable resources which the new facilities placed at his disposal.

In the early canal systems, the administration had to assume the responsibility of cutting even the smallest canals and taking the water right into individual rice fields, but today this responsibility is, usually willingly, assumed by the interested parties. It is still necessary for the administration to keep constant watch to see that the ditches are properly cared for. Where the land is only slightly sloping, sluggish drainage is actually an aid since it assists in fertilizing the land by depositing silt. The canal banks, alternately cracked by drought and softened by rains, either let water filter through or begin to slip and crumble. A series of years with adequate

⁵ M. G., "Le paysannat en Annam," in *Bulletin économique de l'Indochine*, 1938, p. 23.

rainfall makes irrigation seem superfluous to the peasant and increases his carelessness. The distribution of the water itself requires careful organization, especially when shortages necessitate its use turn and turn about in various sectors in order to avoid any wastage.

It is difficult to calculate precisely the increase in yield which can be attributed to irrigation as estimates vary widely and are often fanciful. As between one sector and another, results are often totally disparate; and no generalization should be based on observations made on only a few fields. However, crops have been systematically weighed in Tonkin since 1933, and it may be stated that the average increase in yield is between 500 to 600 kilograms of paddy per hectare for a single yearly crop, the crop itself being now fairly certain. Where irrigation makes possible two crops instead of one, the increase may be between 1,800 and 2,000 kilograms per hectare. But it should be added that the peasants must be willing "to take the trouble to cultivate their rice fields properly."⁶

Other Improvements in Rice Cultivation

Even when they permit the regulation of the water level in the fields, irrigation and drainage alone cannot metamorphose rice cultivation. Additional measures are also needed, depending not only on engineering skill but also on a thorough knowledge of native society, of the peasants' mental processes and of their traditional methods of agriculture.

Irrigation works have made possible a large increase in the rice-growing areas of Cochin China. In the Tonkin and Annam deltas, several thousand additional hectares have been made available for cultivation in the highlands and on the sea alluvions. Especially important is the fact that the crops have been stabilized and in many cases a second crop can now be grown on land which before irrigation could only produce one a year.

Nevertheless, the average yield of the rice plantations is still rather low. In 1928 it was estimated at about twelve quintals per hectare for a single crop, and since then it has probably

⁶ Bigorgne, *op. cit.*, p. 292.

not increased much. The rice fields of the northern deltas are undoubtedly more productive than those of Cochin China, and they often yield two crops a year. On the other hand, because of the overpopulation there, the aim is toward intensive cultivation which attempts to extract from over-worked soil the maximum yield possible with the existing agricultural methods and the extreme poverty of the peasant, or *nha qué*.

The rice fields lack manure and the *nha qué* knows it. But how can he get it? In Tonkin, every possible source of fertilizer is used—human and animal manure, residues from various industries, and in some places even green manure. But these sources are very limited. The lack of pasture in the plains, where every patch is jealously reserved for the cultivation of food crops, precludes any increase of domestic animals beyond those absolutely necessary for plowing and harrowing. As yet the price of chemical fertilizers, with few exceptions, keeps them out of the peasants' reach. Their wide use will become possible only when rural agricultural credit is generally available. A systematic campaign must be waged against plant diseases and parasites, which are among the main causes of the irregular and low average yield. Rats and crabs, too, often cause great damage to the rice fields.

Lastly, improvement of the rice strains will directly affect the volume of production. Far too many kinds of rice are cultivated in Indo-China—certainly more than two thousand. Descriptions of these varieties and comparison of their yields in Indo-China and in their place of origin will make possible the selection of those best adapted to various soil and climate conditions. It will then be practicable to choose scientifically the types with the largest yield of good quality grain. Finally, the seeds of the selected varieties can then be distributed throughout the countryside and the peasant induced to cultivate them exclusively.

Since 1930 studies and practical experiments in rice culture improvement have been entrusted to the Indo-China Rice Service, a public, incorporated institution. It has its own laboratories and its research and propaganda departments. It supervises the provincial farms where selected seeds are

grown, distributes the seeds and teaches and advises both the peasant and the plantation manager. "The road is long," said the Director of the Rice Service, "which leads from mixed varieties with high proportions of red and chalky grains, small in size, in short, from the product of traditional farming to the refined varieties without a single red or chalky grain, and thence to the pure high-yielding strains."⁷ The work is well started, however, and it is following the example of Japan, where half of the rice fields are sown with eighteen varieties, four of which cover a third of the area. To date the best results have been obtained on the Battambang plain through collaboration between the Rice Service and the Department of Irrigation.

The functions of the Indo-China Rice Service go beyond the purely agricultural sphere. It is in constant touch with manufacturers and exporters, for the greatest handicaps to the ready sale of Indo-Chinese rice on the world markets are the methods of harvesting and of local trade.⁸

SUPPLEMENTARY CROPS

The Indo-Chinese owner or grower whose main business is not rice cultivation is still a very rare specimen. Almost everywhere rice is the crop which demands the most care, covers the largest cultivated area and constitutes the main food supply.⁹ Local capitalists prefer to invest or speculate in rice lands. The Indo-Chinese civilization is a rice civilization in the plains as in the highlands, when it is often cultivated at elevations of 1,500 meters or more. Only a few groups of Meos depend on another grain and use maize as their principal food. The coming of the European has not destroyed the preeminent role of rice; in fact new trading facilities have made it the most easily and regularly marketable of products. Rice is Indo-China's leading export and

⁷ M. de Visme, "L'Office indochinois du riz," *Bulletin économique de l'Indochine*, 1938, p. 80.

⁸ See below, pp. 309-310.

⁹ Year in, year out, the area planted to rice is about 5 million hectares, the average yield being 7 million tons of paddy. Maize, the crop next in order of importance, covers only 500,000 hectares, with a 600,000 ton yield.

will undoubtedly remain so for a long time, although its lead is being reduced as other commodities increase in importance.

This predominance is not without its drawbacks and dangers. It has been claimed that rice figured too heavily in the colony's foreign trade, that its distribution entailed problems that might not always be easy to solve and, moreover, that the excessive expansion of rice plantations in Cochin China had considerably aggravated the economic stagnation of 1930-1935. The desire for economic autarchy entails the fostering of products that Indo-China itself or the mother country must now obtain from abroad. Because of its long standing, rice-growing is an unprofitable field for the European colonizer to whom time is important; his improvements clash with firmly rooted traditions which the impatient reformer often mistakes for the obstinate resistance of habit. The public health office emphasizes the fact that whatever the nutritive qualities of rice, a more varied and substantial diet for the people is desirable. Great efforts have been made to develop supplementary crops on native farms, and have achieved uneven results. The history of these attempts will be briefly outlined here, the results reviewed, and the evolution toward *polyculture* traced.

Among the supplementary crops, some grow well in alluvial soils and consequently are particularly suitable to the delta regions where they are interspersed among the rice fields or are even rotated with rice on the same patch of ground. Some of them supplement the native diet quite liberally. Others, whose use involves more complicated operations, fall into the category of industrial crops. In a third class are the tree crops like coconut, kapok, pepper and lac, which usually grow on sloping hillsides or in gardens and whose product is principally intended for export.

Secondary Food Crops (Maize, Potatoes, Beans, Manioc, Taro)

In addition to rice, which has been grown from time immemorial and which may be native to the peninsula, the Indo-Chinese peasant cultivates some American plants; several were probably imported in the 16th century via China. Those

covering the greatest area are maize, sweet potatoes, beans, several kinds of dolichos, manioc and taro. They are significant items in the native diet, especially in the northern deltas. In Tonkin and in north Annam they are a godsend to the peasant during the lean weeks when the rice reserves are almost exhausted and the new crop not yet harvested.

It is difficult to estimate the area planted to these crops and, consequently, to determine how much it has increased since the French occupation. Statistics of area and production of these crops are more difficult to obtain than for rice since they are grown on even more scattered plots. Often, too, they are interplanted one with another; beans and dolichos, for instance, are frequently found planted between rows of maize or mulberry trees. The planted areas vary a good deal from one year to the next, depending on climatic conditions and water supply, for these are chiefly dry season crops, cultivated after the main rice crop, although in the north the peasant very often still tries to grow a second crop of rice, his mainstay and favorite cereal. On the whole, modern irrigation systems have rather decreased the production of secondary crops in comparison with rice in the irrigated regions.

Maize, however, has shown very great increases throughout the country. Until about 1905 it was only grown for local consumption; since then, French demand has made it a large export item. Since 1930 the profits from maize have been higher on the average than those which the native could get from the sale of an equal quantity of rice. But this progress is due solely to increases in the size of the cultivated areas and not to any improvement in methods which are occasionally deplorable. The preferred location for maize growing is on the new alluvial soils, banks and beds of streams after the floods recede. In such places it has frequently replaced the mulberry tree. It is also cultivated on dry ground away from streams, the seeds being sown before the heavy rains, and sometimes it is even planted in marsh lands which, however, are not well suited to it. Outside the deltas it is no more than a temporary crop grown on cleared or burned land.

Increased yields for all these supplementary crops again depend upon selected strains and fertilizer possibilities. Moreover, although these cultivations are called "dry" in contrast to rice, some irrigation would certainly be beneficial to them. It would seem advisable to take them into consideration more than heretofore in the irrigation programs. Although needing less water than rice, they can undoubtedly make more efficient use of the potentialities of the dry season, often too extreme for that grain.¹⁰

Commercial Crops

In contrast to the foregoing, certain native commercial crops have for some time past held the attention of the business interests and agricultural bureaus of the colony, which have tried to develop their cultivation in the plains. These efforts have not always been successful. Doubtless the worst disappointment was that encountered in the cultivation of textile crops. Like many other French colonies, Indo-China had seemed capable of filling, at least partially, the mother country's great demand for cotton. From time immemorial cotton has been cultivated throughout Indo-China for the weaving of native fabrics, but it is a very scattered operation; only in the provinces of Thanh Hoa and Phu Yên in Annam and on the banks of the Mekong (the *chamcar* crop) in Cambodia does it occupy areas of any size.

In 1919 a company with European capital laid out a cotton plantation on the red lands of Kompong Cham province in Cambodia, where it had obtained a large land grant. "Its fate was settled within a year; the company's balance sheet showed an almost total loss of the capital investment and made public opinion lose all faith in the idea."¹¹ The production cost of the marketable product was much too high on these un-irrigated and sparsely populated lands.

Consequently, the only thing left was to develop the native cotton crops and that only in districts already thickly populated. Unfortunately, in the history of native agriculture cotton has brought but poor returns. It can be grown only

¹⁰ Bigorgne, *op. cit.*, p. 514.

¹¹ Yves Henry, *Economie agricole . . .*, *op. cit.*, p. 514.

during the dry season and then the plants often suffer from lack of water; on the other hand, the fibre is frequently damaged by early rains just as it is beginning to mature. On the whole the cultivation is done out of season and it would not be easy to change the native's habits in order to produce long-fibred varieties. Although precise figures are lacking, cotton cultivation probably decreased throughout Indo-China when it began to compete with imported fibre.

Another crop which is falling into disfavor is the mulberry tree. Although it probably never did play the large role sometimes attributed to it, in some Annamite and Cambodian villages many families depended upon its cultivation for an appreciable supplement to their resources, either by raising silk worms (*bombyx*) or by selling fresh leaves to neighboring villages of silk growers.

The French government has expended a great deal of money and ingenuity to encourage raw silk production. Experimental stations were established and competent and enthusiastic officials collaborated with the private groups subsidized by the silk manufacturers of Lyons.¹² In the end they failed to reconcile the conflicting interests of the French industry, the European mills in Indo-China and the native weavers and growers. In spite of the fact that supplies of selected eggs have been obtained from workshops devoted to the production of silk-worms' eggs, native sericulture is too often carried on in such unhygienic conditions and burdened with such routine practices that it cannot compete successfully with Chinese raw silk and with rayon. This is unfortunate because through its large labor requirements and its close relation with rural industries, it seemed well suited to overpopulated areas and capable of serving as a valuable equalizing factor in their economy.

Jute and ramie have often been of considerable interest to both agronomists and merchants. Certain areas, particularly in Cochin China, seemed to offer conditions quite similar to those of Bengal for native cultivation of jute along with rice. In fact, however, jute and ramie are grown on very small areas; the fibres are only used locally in making fish nets and lines.

¹² Yves Henry, *op. cit.*, p. 239.

Tobacco is only cultivated here and there and production is confined to strong tobacco for local consumption. It is an exclusively native culture, carried on by families on small plots of carefully tended land. It is often grown after the rice crop and its expansion is hindered by lack of fertilizer.

While sugar cane production has not had the impetus given to Javanese sugar by Netherlands' capital, it is an interesting example of collaboration between the European and the Indo-Chinese. Sugar has been grown for a long time in very scattered locations, most extensive in the small deltas of central Annam, between Tourane and Cape Varella. Recently it has spread into eastern Cochin China, along the Dong Nai, the Saigon River and the eastern Vaico—streams which seldom have large floods.

In the valley of the eastern Vaico, sugar cane is grown on a 650-hectare plantation granted to a European company and cultivated by native sharecroppers; it is also the principal crop of about 3,000 Annamite landowners between Tây Ninh and Tan An. At first, attempts were made to change the methods of cultivation by the use of mechanized equipment and by ploughing, but this turned over too much earth and so there was a return to the traditional methods of the peasant, whose light hoe cultivation loosens the soil much more efficiently. This company's experiments, together with the mill at Hiep Hoa, were directed by a specialist from Guadeloupe and, while they were made on company plantations, they were of value to the sharecroppers and native landholders. The latter are under contract to deliver their produce to the company mill which, in turn, grants them loans of fertilizer and cash. Sugar is a crop which demands a great deal of labor and care. Drainage and irrigation must be alternated, taking as much advantage as possible of the action of the tides; sometimes pumps are used. The fields are divided into ten meter blocks separated by small canals. The cuttings are placed in furrows cut across the blocks; they are then covered with earth or with burned paddy chaff, which keeps the soil damp, and with fertilizers—sulphate of ammonia, phosphate and potash. The crop matures twelve months after planting, and by careful cultivation the same stalks can be kept in the ground for two

years. During the harvest season 6,000 workers are employed in the fields and mill.

Miscellaneous Shrub Crops

It is possible that certain shrub crops will prove to be among the most valuable assets of the native economy. But, although the Indo-Chinese frequently proves to be an excellent cultivator of rice and other field crops, and even a skillful truck gardener, he is but a poor arboriculturist. In his view, a tree calls for very little attention. He does not prune it or give it the detailed care which European orchards receive; nor does he give it the benefit of the industrious, solicitous attention so conspicuous in many French provinces. Perhaps this is because the Indo-Chinese receives nothing essential from trees and the care of his annual crops is enough to keep him busy; tree culture seems a rather superfluous activity with no real meaning for him. This indifference on the native's part hinders any long-term plans, and his poverty often makes them impossible, for the tree or shrub only begins to bear after several years of waiting.

Apart from gardens where fruits like the banana and papaya are grown for use in the native diet, the deltas of Indo-China are rather unsuited for shrub crop cultivation. There are exceptions, however; mention has already been made of the mulberry, the cultivation of which, however, is declining. The coconut tree is another. As a rule it bears fruit only south of Tourane. In the Binh Dinh province, Annam, there are already more than 2,000 hectares of coconut trees, but the most productive region is that around My Tho, Ben Tre and Vinh Long in central Cochin China. Here, along the tributaries of the Mekong, coconut trees have multiplied steadily since the beginning of the century. The abrupt fall in the market price of copra after 1930 discouraged planters and most of the plantations today are run down and consist of old trees which are only moderately productive; both the cultivation and preparation of copra should be improved.

Kapok cultivation is growing in Cochin China and Cambodia, and is even meeting with favor among European colonists. As far as the native is concerned, it can hardly be

called cultivation. He gives the tree no care; his practice of gathering the fibres after they have fallen to the ground, and his rudimentary ginning processes do not facilitate refining the product for market.

Although the pepper plant of Indo-China (*piper nigrum*) is a climbing vine, it is included among the tree crops because of its slow growth and long life. It is propagated by cuttings and does not flower until the third year. A well tended pepper plantation is in full yield between its sixth and twenty-fifth years although it may last fifty years or even longer. It is not an easy crop to raise. Pepper is grown chiefly in the coastal regions of Cambodia, somewhat above the rice lands, on gentle slopes where it is protected from high winds. The vine twines around tall stakes set out in ridges, must be weeded frequently, watered during the dry season, and nourished with very rich fertilizer; at the end of the rainy season soil must be piled up at the base of each plant. This highly skilled type of cultivation is left almost entirely in the hands of Chinese specialists from Hainan; it is carried on largely in the Cambodian province of Kampot on the coast of the Gulf of Siam, crossing the border a short way into the neighboring province of Ha Tien in Cochin China.

Hilly and mountainous regions are suited to a greater variety of trees than the plains. Some of these, acclimatized there for many years, are quite extensively cultivated. This is true of the cinnamon tree which both Annamites and Moi raise in Quang Nam near Try My, and especially in Quang Ngai.

The lac tree (*rhus succedanea*) has spread widely in the heart of Tonkin where it produces an excellent crop; the tree is ready for tapping three years after planting from seed and produces for the next three or four years; then the land is allowed to lie fallow for several years before it is planted again.

More recently there has been a decided interest in the cultivation of the tung tree (*aleurites montana*) whose fat kernels yield an oil used in the manufacture of varnish. With a good deal of government support this crop is now spreading around the deltas of Tonkin and north Annam, especially in Thanh Hoa, and is also being tried out in Cochin China.

Plantations of anise trees (*illicium verum*) cultivated by various peoples, including the Tho, Nung and Chinese, are restricted to a small region in Tonkin extending along the Chinese frontier between Lang-son and Cao Bang; all attempts made to acclimatize it elsewhere have failed. Except on one European plantation, the trees are given only rough weeding and even this is done only to expedite the gathering of fallen fruit. The tree grows ten to fifteen meters tall and its fruit is known as starry anise. It only begins to bear in its tenth year and the yield is very small until the fifteenth.

On their own account the natives are now beginning to develop crops which have proved successful on European plantations: in particular these are tea, which they have long grown, and also coffee and rubber. Coffee is a favorite crop of the small Annamite colonists who have settled on the South Annam plateau. These native settlers are especially numerous near Djiring in Upper Dong Nai but as a rule their plantations are poorly tended; coffee trees are planted without shade or else are sheltered by plants like the banana tree which exhaust the soil. The Moi themselves cultivate coffee on Bolovens plateau in lower Laos; the moment when the crop requires the native's rather elementary care comes just when he is finishing work on the *rai*.

In Cochin China, there are some Annamite-owned rubber plantations. Almost all small, ranging from 10 to 100 hectares in area, they are located in the gray lands. By 1922 there were already several and today their number has increased. However, they supply only a very small percentage of the total latex production, much less than the share produced by native owners in British Malaya and the Netherlands Indies.¹³ The reasons for this are many, but the main one seems to be that until recently Annamite investors restricted their activities to the development of rice plantations.

POSSIBLE FUTURE DEVELOPMENTS

Except for rice and maize, the native growers of Indo-China still produce only a small proportion of the country's exports.

¹³ See above, p. 208, footnote 30.

The example of the Netherlands Indies would be misleading if the same results were anticipated easily in Indo-China. The Indies have long benefited from systematic Dutch efforts and experience; they have been the scene of a long series of experiments which did not always turn out well. The natives have benefited a great deal from this experimentation, as is indicated by their share in certain export crops.¹⁴ But the natural advantages of Java and Sumatra should also be taken into consideration; both climate and soil there seem to be on the whole more favorable to abundant crops than they are in the French colony.

Nevertheless it is true that there are opportunities for very diversified agriculture in Indo-China, and it seems wise to direct the native peasant to the production of crops other than rice. This would not only improve his standard of living, but it would also help to develop his skills and mental alertness. Rice is a very old cultivation—the most deep-rooted of all—and in the face of progress its growers are shackled by the inertia of centuries. The methods and care required by new crops, or rather, those which had formerly been little grown, are like a fresh wind blowing among the peasants. Even commercial traditions, such a serious hindrance to the progress of rice culture, can more easily be improved for the native's own benefit in the case of other crops.

Shrub crops in particular help to facilitate Annamite penetration into the hinterland, where land suitable for irrigated rice cultivation is rather scarce. The colonist who is willing to settle outside the delta must count on the harvests from crops planted on dry slopes; he will not exclude food crops, but these hillside plantation products, whose light weight counterbalances the costs of longer hauls, will be unrivalled in their cash return—in fact the British call them "cash crops."

Settlers already established in the back country will also find shrub crops profitable. Because of the extensive care which they require, they reinforce permanent settlement and may help the still semi-nomadic mountain groups to establish

¹⁴ In 1937 native plantations of the Netherlands Indies supplied 49 per cent of the rubber, 67 per cent of the coffee and 100 per cent of the pepper exports.

themselves in one spot. Bit by bit they will also help check forest fires and overthrow the ruinous *rai* system.

The choice of the most profitable supplementary crops does not depend on local potentialities alone, but to a great extent on the size of markets. As a result, it is not a permanent choice but whatever it is and however flexible it may be, new cultivation must depend on both scientific equipment and organized farm credit.

The importance of agricultural research has long been recognized. Many experimental stations have been established in the different countries of the Union, but they worked independently, without the benefit of each other's experiences. They lacked well-equipped laboratories and specialized personnel and their funds were very meager and uncertain. As a result, their over-worked officials became impatient with the inevitable delays of experimentation and many a station, opened with enthusiasm, was abandoned after three years "because of the lack of definite results."¹⁵ On the other hand a study center like that at Phu Hô in Tonkin proved the value of persevering and steady work.

Recently all the experiment stations were reorganized under the Institute of Agronomic and Forest Research, which promotes all crops except rice and, in addition, maintains central laboratories at Saigon and Hanoi. At the same time the Institute's work widened to include not only the European plantation crops, rubber, coffee and tea, but also those which could be beneficial to the native economy. This scientific organization coordinates its program closely with those of credit institutions and agricultural cooperatives.

Cooperation was not unknown among the natives, who had practiced it for generations within the framework of the village community in building dikes, digging canals, regulating the flow of water into the rice fields, helping the needy, and so on. But now it was necessary to widen its scope and to include aims which, because of the natives' ignorance, indifference or poverty, had not hitherto been taken into account. There followed a series of very interesting attempts to educate the native communities up to modern cooperative levels, with

¹⁵ G. Capus, *La production du thé*, *op. cit.*, p. 17.

results which are still incomplete and imperfect.¹⁶ This was a government undertaking, inspired both by European co-operatives and by those already developed in neighboring countries, particularly in the Netherlands Indies, to meet the needs of their peoples who resemble the Indo-Chinese in their mode of thinking and standard of living.

The first job of all was to secure a better distribution of credit among the peasants. The Indo-Chinese peasant just manages to live from day to day, or at most he has extremely limited reserves. Many of the inferior methods of cultivation arise from his chronic state of want and his need for immediate returns on his labor. The predominance of rice and maize is largely due to the fact that both are plants which grow fast and yield products which are readily negotiable. The difficulty of planting and especially improving certain shrub crops is partly explained by the fact that, for lack of money, the peasant cannot wait. Thus, in the cinnamon tree plantations near Tra My, instead of raising nurseries of plants propagated by layering or from selected seeds, the Annamites usually follow the Moi's example, digging up young shoots in the forest and transplanting them in good soil. Cinnamon trees are often cut down, after stripping the bark, when they are only four or five years old though they should not even be barked until they are fifteen or twenty years old. When he is short of cash the small grower of pepper plants in Quang Tri gathers all the fruit at once when many of them are still unripe, instead of picking partially and selectively which would be much more profitable. Such foolish practices, all closely linked to short-sightedness and poverty, happen over and over again.

The first mutual agricultural credit organizations were set up about 1913 in Cochin China.¹⁷ Direct loans from the Bank of Indo-China to average and small native landowners had been deemed impractical. Loans from that bank to communes had produced only the meagerest of results and it was difficult to control the use of the money which often found its way

¹⁶ See the important article by M. Guillaume, "La coopération agricole en Indochine," *Bulletin économique de l'Indochine*, 1938, pp. 31-65.

¹⁷ See above, p. 170.

into the hands of usurers. The *Crédit Agricole Mutuel* itself was not to escape these charges; by 1920 it was functioning in all the provinces of Cochin China and its operations were based on real estate security. As a matter of fact, it particularly assisted in the expansion of rice cultivation in Transbassac between 1925 and 1930. Thereafter, it suffered the full severity of the depression and could not withstand the sudden drop in the inflated prices of paddy and rice land. Since 1933 it has been laboriously liquidated and the final capital loss must in principle be sustained by the Cochin China budget.

The revival of agricultural credit in Cochin China will be brought about by extending the *Crédit Populaire* system, established in 1926 and reorganized in 1933 on a more mutual plan under the name of *Crédit Mutuel Agricole*. As yet, it operates only in the other countries of the Union, notably in Tonkin and Annam. Under this new plan, loans are made not to persons whose individual actions cannot be controlled, but to the Agricultural Cooperatives, on behalf of their members who are the peasants. These Cooperatives assume the responsibility of collecting their members' crops in warehouses and of selling them at the best possible terms for the producer. Their role has grown quite naturally to include the improvement of both quantity and quality of production. To accomplish this it was necessary, on the one hand, to educate the peasants as to the best methods of cultivation, the use of selected seeds, manure, etc. and, on the other hand, to secure for the peasant as large a share as possible of the increased value of his product resulting from its processing before sale. It is clear that the cooperatives can help both the circulation of credit and the improvement of farming among the native masses. At one and the same time they distribute the funds placed at their disposal by the Mutual Agricultural Credit bureaus, and technical information supplied by the experiment stations and the Institute of Agronomic Research.

In addition they aim to reduce the often exorbitant charges of middlemen. The domestic traders in Indo-China, sometimes Chinese and sometimes native, are often usurers as well, advancing money for taxes and for family and religious celebrations, supplying imported articles which the native

uses, and often taking in payment the majority of his crop, "the merchant-usurer cuts off the producer from all the currents of trade."¹⁸ Through the cooperatives, on the other hand, he will be enabled to participate more and more directly in this trade.

Doubtless, the road to this goal is long and hard, but it is well worth the effort involved.¹⁹ In principle the capital of the Agricultural Cooperatives is raised by shares subscribed to by the members. In fact, the plan could not be launched without the assistance of the government which not only advances funds to the *Crédit Mutuel Agricole* but subsidizes the Cooperatives and generally appoints the officers who manage and supervise them. The transactions of the provincial offices of the *Crédit Agricole* are greatly hindered by the uncertainty of the security given for the loans; they can only be clarified by a land survey, which is now under way, and by the establishment of a land registry.

The first Cooperatives organized are regarded as models which will hasten the establishment of associations exclusively based on the mutual principle. Their activities have related to a variety of products, not only paddy, but also tung and castor oil, maize, tobacco, tea, sugar, coffee and mulberry in Tonkin and Annam; coffee on Bolovens plateau; sticklac in Hua Pahn in Laos; palm sugar in Cambodia.

Cooperatives and cheap credit should also play a fundamental role in the development of small native industries.

¹⁸ M. Guillaume, *op. cit.*, p. 55.

¹⁹ "The evils of usury are so far-reaching that precautions must even be taken against those who appeal for credit, in order to avoid, in turn, their transforming the funds granted to them at low rates into usurious loans." (Address by Governor General Brévié before the Grand Council of Economic and Financial Interests, 1937 Session.)

CHAPTER VII

INDUSTRY

Dozens of traditional industries, largely carried on by peasants and family groups, are found in Indo-China. They produce enough to supply practically all of the local needs and support a large number of persons, sometimes entirely, but more often as a supplement to agricultural labor. They are an essential factor in rural community life.

Although these native industries have deteriorated somewhat, they are by no means completely stagnant. In Indo-China, as in other parts of the world, Europeans have introduced a new type of industry based on the use of machinery, the concentration of capital and labor and wide commercial relations. These modern industries, however, employ far fewer workers than the traditional ones.

TRADITIONAL INDUSTRIES

All too little is known of the traditional industries and, while they excite the curiosity of the ethnologist, the sociologist and the anthropologist, their study would also be of considerable practical value.

Only in the two northern deltas of Tonkin and Thanh Hoa have thorough and fairly recent investigations been made.¹ Their findings will be outlined here very briefly.

The Tonkin and Thanh Hoa Deltas: In these thickly populated maritime lowlands (there are at least 450 persons per square kilometer in lower Tonkin and 300 in lower Thanh Hoa), it is estimated that at least seven per cent of the population draws the major part of its income from the traditional industries. This figure would hardly be altered by the addition of urban artisans, since only a very small proportion of the delta population lives in cities.

¹ P. Gourou, *Les paysans du delta tonkinois*, *op. cit.*, pp. 448-538. C. Robequain, *Le Thanh Hoa*, Paris, 1929, Vol. II, pp. 413-465.

Among the rural industries those connected with the preparation of food, such as rice husking and bleaching ("hang sao"), the manufacture of rice paste and cakes, bean curd, starch, oils and molasses, the distillation of alcohol, etc., undoubtedly employ the greatest number of workers, but it is difficult to distinguish between industries working for home consumption and those working for sale.

The textile industries come next in the number of workers employed. Although, from the point of view of the value and size of their transactions, they would undoubtedly lead. First come the cotton industries. While the local fibre is still spun on the spot in a few villages in Thanh Hoa, this is becoming very unusual in Tonkin. But there are many primitive looms on which women weave cloth which, though coarse, is strong and highly valued by the peasants. The weaving of certain silk fabrics from native raw silk still continues but is declining in competition with the manufacture of finer fabrics made chiefly from Chinese silk. With the textile industries may be included embroidery, lace making,² the manufacture of fish nets, hammocks, rope and twine from jute or ramie, and the clothing industry.

Basket making is likewise a widespread activity. The materials used are chiefly bamboo, latania leaves and certain vines from the back country, as well as salt-water reeds. They are made into a great variety of articles for everyday use, such as mats, hats, raincoats, baskets and all kinds of receptacles for transport purposes and for keeping provisions and kitchen supplies, implements for irrigating and fishing, and so forth.

Although all Annamite settlements have one or more carpenters and joiners, specialists are often called in from other villages to build substantial houses, and to make certain pieces of furniture and agricultural implements. These specialists move about in gangs from one canton to another for shorter or longer periods, and include sawyers, lacquerers, turners, and carvers.

Masons, stone cutters, brick makers and lime burners are all members of the building industry. There are a few villages of blacksmiths and artisans who make brass and copper

² Often controlled by European brokers.

articles, but the peasant uses little metal. Pottery also is the special craft of a few settlements, the principal ones being Huong Canh, Thô Ha and Bat Trang in Tonkin, and Duc Tho near the chief town of Thanh Hoa.

These are the traditional industries with the largest production and employing the greatest number of workers in the northern deltas. There are many others, such as jewelry making, the manufacture of paper from bark, the making of religious figures, paper and bamboo fans, etc. The small industries of Hanoi are the ones best known to the European. Here, in side streets which are survivals of old villages, the workshop and store are combined. But the small handicrafts of the country, hidden behind bamboo hedges, are even more varied and very little known.

Information concerning the origin and history of these village industries is very meager. Their location can frequently be explained by the proximity of the raw material, as, for example, the pottery, tile, stone cutting and lime industries. But the majority seem scattered about more or less by chance. Many industrial villages located among rice plantations must transport the necessary raw materials and fuel with great difficulty, a fact which at first baffles the observer. On questioning the *old-timers* and consulting the few written records, one learns that such and such an industry has been carried on in the village from time immemorial and that another was introduced by someone who came from China, stopping first in Tonkin and then coming from Tonkin to Annam.

These rural and family industries are primarily handicraft industries; they supplement agriculture and make use of that portion of the peasant's time left over after his work in the fields. Villages of artisans having little or no land are extremely rare, a few groups of potters being the only exceptions. In general the artisan is also a farmer. He returns to the fields at least for the heavy work, especially during transplanting and harvest time. Often the handicraft is undertaken only by the women of the family, as in the case of weaving; or only by the men, as with wood working and stone cutting. Most of the industries are carried on by both sexes, and require only simple skills. These include basketry and religious items

made of plain cubes of laminated bamboo upon which gold, silver or colored papers are pasted to invoke the favors of the invisible powers. These crafts can be laid aside for several weeks or even months at a time, or, on the other hand, taken up during the scrap of leisure time which can be spared from work in the fields.

The necessary tools are primitive and require the tiniest of capital expenditure. The artisan is too poor and too shortsighted to keep on hand either reserves of raw material or supplies of finished articles. This poverty and improvidence also explain the frequent, extreme specialization of some villages and the minutely subdivided work. For instance one group of basket makers weaves only a few kinds of articles and sometimes only one, a hamper being made by one group and its cover by another. Some villages raise silk worms, others reel or spin the raw silk, and still others weave the cloth, often a single type which gives them a wide and well-established reputation. The artisan lives from day to day, buying his raw material in small quantities and selling the crudely made products as quickly as possible. These small industries promote commercial relations between villages often quite widely separated.

Perhaps there are ethnic influences which are responsible for this specialization, but so far this has not been proved. In any event it bears no resemblance to a division of society into castes, something absolutely unknown to the Annamites of today. In this respect Indo-China's traditional industries contrast with India's; the artisan is not looked down upon. In practice the specialized crafts may tend toward a monopoly, but if such a monopoly has been aided by privileges granted by the native government, it has never been sanctioned by law. Undoubtedly a study of rural industries in China would shed light on those of the Annamite countries.

Other Districts

Only very incomplete data are available on the rural industries of Annam south of Thanh Hoa. All through Annam, however, the traditional crafts are apparently very similar to those found in the north. For example, in Nghê Tinh, there

are specialists famous for making sampans and baskets; central Annam produces certain kinds of silks (crepe and bunting) and very good pottery (particularly in Quang Nam), while the rudimentary presses and cast iron vats of Quang Ngai turn out several hundred tons of molasses and brown sugar annually. In addition to sugar making, the villages of Binh Dinh manufacture coconut products such as oil, cordage, brushes and rugs, especially in the Tam Quan region; peanut products (oil and cake); silk, particularly around Bong Son; hats at Phu Cat; vermicelli at An Thai; *nuoc mam* at Go Boi, etc. The manufacture of *nuoc mam*, a national condiment made from certain kinds of fermented fish, often creates industrial concentrations calling for a labor force which exceeds the framework of artisanry; this is particularly true at Phan-thiet in South Annam.

Many different types of industry are also scattered over the plains of Cochin China and Cambodia, but the small rural crafts do not seem as firmly rooted in the southern deltas. The Annamites did not begin to settle in Cochin China until the seventeenth century, and as a result are less bound by tradition there; the population is also smaller than in the north and there is less abject poverty. Apparently because the supplementary industries have never been so well rooted here, they have declined faster in competition with imported articles. However a few cotton weaving industries still exist in the "giong" region of Go Cong south of Saigon; there are some basket makers near the Joncs lowland; the leaves of the water palm (*nipa fruticans*) are particularly utilized in the Camau district where matting is woven for sails; Thudaumot, which justly prides itself on its cabinet makers, also has metal workers who make blades for felling knives, sickles and plough shares out of scrap iron, while Lai Thien and Bien Hoa are great pottery making centers.

Although household industry is still the rule in Cambodia, the village specialization so characteristic of the Annamite deltas in the north is not found here. This is also true of the Laotians and the various mountain peoples. Each village, if not each family, produces most of the articles needed for its daily life. However, both pottery making and metal work

still appear to be strictly localized, the latter being carried on north of Kompong Thom by the Kouy of Phnom Deck and, in the province of Kontum, by a few Moi Sedang villages.

It is impossible to determine with any degree of accuracy the number of natives who depend chiefly on these traditional industries for their livelihood. If 7 per cent is the proportion for Tonkin and Annam, and 4 per cent in the other countries, the total would be 1,350,000 persons on the basis of the 1936 census.³ This is not an unimportant figure especially in relation to the number employed in modern industries.

MODERN INDUSTRY

Except in very rare instances, Europeans have not known how or have been unable to maintain efficiently or improve the traditional native industries of their tropical colonies. Interest in reviving and encouraging these industries in Indo-China has not been lacking, however. Plans have been drawn up and steps taken toward this end. In spite of the efforts and genuine interest of a few well-trained persons, however, these have been *fragmentary ventures*; they have not had the benefit of adequate and continuing support from private organizations or the government. Practically the only exceptions are the art crafts which have been backed with *intelligence* and perseverance in recent years and are showing signs of revival, especially in Cambodia.

The great majority of rural industries have only just had the benefit of a preliminary, incomplete survey. Possibly indifference is one reason for this, but it is more likely the result of a notion, widespread even though not always admitted, that the disappearance of traditional crafts is inevitable and therefore they might as well be left to decline and die out quietly. Preserving and improving them has seemed futile,

³ Just as this manuscript was going to press, the author received the first number of the *Bulletin économique de l'Indochine* for 1939. A survey was made in 1937. The figures given by this periodical (pp. 11-14), are somewhat contradictory. According to the figures given for each country in the Union (those for Annam seem to the writer to be too low) and the general population census for 1936, the number of artisans would be about 1,350,000, which corresponds exactly with the above evaluation. But a thorough investigation should indicate whether industry is the worker's principal means of livelihood, or only a secondary one.

and adapting them to changed conditions too difficult an undertaking in view of its doubtful results. The large factory has almost wiped out rural family industries in Western Europe; the same change seems inevitable in colonial lands. It is to the development of an entirely new kind of industry, of the European type, that white men are devoting their abilities, their energies and their capital. A variety of circumstances, and especially the tariff policy of the mother country, have aided mining more than the processing industries, even though the latter are often the type of "complementary" enterprise which the Economic Conference of 1934 stressed as being important for a colonial empire.

The Mining Industry

The Development of Mining: The Indo-Chinese and the Chinese in particular have prospected throughout Indo-China; all over the countryside there are evidences of mining enterprises of every period.⁴ These traces have furnished valuable information to European miners. Indo-China's mining production had never been large and was insignificant at the time of the French arrival.

At first quite lax, official supervision of the exploitation of mineral resources has only gradually been organized. At present, all mining matters are handled by a special branch of the government, the Department of Mines, with headquarters at Hanoi. One of its subdivisions is the Geology Department, which has already accomplished outstanding results, both scientific and practical in nature, which are recorded in its *Memoranda* and *Bulletin*. It makes systematic surveys of the soil and sub-soil of the country and issues maps in various scales which are useful to prospectors. The surveys, which at first were almost entirely limited to Tonkin, have gradually been extended farther south. The scale adopted for the geologic maps of the entire country was 1:500,000 instead of 1:100,000, as the former could be more quickly compiled while still giving a reasonably adequate description. Seven maps

⁴On the subject of the Annam and Tonkin mines at the beginning of the 19th century, see the bibliographical report of C. B. Maybon, *Histoire moderne du pays d'Annam*, *op. cit.*, p. 361, n. 3.

have already been published to this scale: those of Hanoi, Cao Bang, Vinh, Huê, Tourane, Nhatrang and Saigon. In addition, the Department publishes a composite geological map on a scale of 1:2,000,000, for the whole of Indo-China, which is frequently revised from numerous detailed reports.

The present mining law of Indo-China, which was established by decree on January 26, 1912, is based on the principle of the claim stake ("la mine à l'inventeur"). Any individual, provided with a personal authorization, can secure exclusive prospecting rights to an area three kilometers square and running north and south, whose center he may select. This permit is valid for three years and can be converted into a permanent grant by fulfilling certain legal and financial formalities; the applicant does not even have to prove that the enterprise is technically or financially practicable. A special regulation, however, has been established for the development of petroleum and natural gas resources, rights to which can be obtained only by public auction.⁵

Under this very liberal law, mining has not progressed at a very steady pace. Moreover, it is by no means true that all the concessions have become remunerative enterprises. Prospecting is often made difficult by the irregular terrain of the back country, the quantity of soil formed by decomposition which

⁵ It was in 1884, following the conquest of Tonkin, that a Commission proposed a decree which was to become the law regulating mining in the French colonies. The placing of a stake in the center of a square is a procedure inspired by early miners in the United States and Canada. As a matter of fact, the stake was apt to be quickly covered over by brush and hard to find; actually it has no meaning except as an identification. H. Lantenois, *Contribution à l'étude comparative des législations minières*, Paris, 1938, p. 97.

Foreigners can neither own nor manage mines, but the nationality of the capital is not subject to regulation.

The decree of June 14, 1937 sets forth an important modification in the law: "When the grantee suspends or restricts the development in a manner detrimental to the public interest, his claim may be forfeited." On the other hand, "the same act permits the French government or the Government General of Indo-China and certain qualified organizations to take part in mining operations." Up to the present time financial participation by the government has been negligible in Indo-China, a very different situation from other colonial territories, like Morocco, the Netherlands Indies or the Belgian Congo, where mining has had strong government support. See P. Guillaumat, "L'Industrie minérale en Indochine en 1937," in *Bulletin économique de l'Indochine*, 1938, p. 1245.

covers the bed rock, the heavy vegetation and the unhealthy climate. Although the mineral wealth of Indo-China has not yet been fully inventoried, it has often been appraised too optimistically. Undoubtedly, there are great areas of the old metamorphic soils, which are more likely than other types to become mineralized, but their structure is often complex, and the veins frequently interrupted or dislocated by slides and faults. Finally, the scarcity of labor and the difficulties of communication are frequently serious obstacles to the development of mineral resources. For example, opening the Nam Patène tin mines meant that equipment had to be transported over long and difficult hauls; the great washers are outfitted with foreign machinery, chiefly German and American in origin and getting a spare part often takes several months, so that well-equipped repair shops have to be built on the spot.

The Hon Gay coal mines, which only began large-scale operations at the beginning of the century, were first in the mining field and it was only in 1905 that the zinc and tin deposits in Upper Tonkin were fitted out. The number of workers employed in mines increased from 4,000 in 1904 to 9,000 in 1908 and 12,000 in 1913. Progress continued during the World War, and after a short drop in production, it began again in 1921. Up to 1926 prospecting was pretty much limited to Tonkin, but from 1926 to 1929 it increased not only in this region, which is Indo-China's principal mining district, but also in others; Laos, Annam and Cambodia all had prospecting fever, or "minitis." The number of prospecting permits in force grew from 257 in 1914 and 1,923 in 1926 up to 17,685 in 1930; but in 1930 the fever was already subsiding and on January 1, 1938, only 1,356 permits were still in force.

Most of the stakes set out by prospectors at the center of their claims have been swallowed up in the brush. Not more than 355 grants were in effect at the beginning of 1938, and only 71 of these were worked during 1937.⁶

Fuel extraction, by far the most profitable form of mining, will be discussed first; minerals and other products will be

⁶ P. Guillaumat, *L'Industrie minérale de l'Indochine en 1937*, *op. cit.*, *passim*.

studied later. At the outset, Tonkin's predominance in the mining industry of Indo-China should be emphasized. This is due to the intrinsic richness of the sub-soil, to the location of the deposits, which make it comparatively simple to transport ores to market, and finally to the availability of labor in the delta. This superiority was still overwhelming in 1923 when Tonkin's mining production represented about 99 per cent of Indo-China's total production; this percentage has been reduced by the recent development of enterprises in other regions—the Laos tin mines in particular. In 1937 Tonkin still predominated, her mines accounting for an estimated 83 per cent of the country's total production (Laos' share being 12 per cent).

Fuel: The extraction of coal is by far the leading mining activity in Indo-China. Total production, which was 501,000 tons in 1913, increased to a record figure of 2,308,000 tons in 1937; its value varied from year to year between 1929 and 1937, fluctuating from 63 per cent of Indo-China's total mining production in 1937, to 89 per cent in 1932.

I. The Quang Yen Basin. With the exception of a few beds of tertiary lignite, Indo-China's coal dates from the beginning of the secondary. By far the richest and most productive area is that in northeast Tonkin, called the Quang Yen Basin, after the chief town of the province where most of the mines are located. Apparently it has been known and superficially worked by Chinese for a long time; in 1876, for instance, it furnished fuel for the manufacture of lime at Haiphong. Its potentialities played some part, although still a rather obscure one, in the history of the French occupation of Tonkin; Commandant Rivière's correspondence discloses the fears which were entertained on the subject of an eventual English occupation of the Hon Gay region. The first scientific exploration of the basin was carried out in 1881-82 by Professor E. Fuchs of the School of Mines in Paris. Grants were made to French businessmen by the Annamite government and one of these, which was confirmed in 1887 by the Residence General of Hanoi, was the beginning of the Société des Charbonnages du Tonkin.⁷

⁷ P. Gourou, *Le Tonkin*, Paris, 1931, p. 257, n. 2.

The Quang Yen basin stretches out in an arc, with its convex side toward the south, a topographical layout corresponding to the general structure of the post-Triassic corrugation in that part of Indo-China (a "virgation" northeast of Tonkin). A chain of hills, carved into bulky ridges and sometimes rising more than 1,000 meters, separates the Tonkin delta to the north of Haiphong from the An Chau depression; it extends east along the edge of the gulf as far as the Chinese frontier. The productive coal beds stretch for about 150 kilometers from Sept-Pagodes in the west as far east as the sudden break marked by the Tien Yen roadstead and the northern shore of Ké Bao Island. The workings follow one another along both slopes of the southern ridge, the Mao Khê range, but the series is interrupted at Port Courbet at the division between the western, or Dong Trieu mines, and those of Hon Gay to the east. Recently other seams have been opened up behind the Mao Khê range on the southern slope of the central and highest chain. The productive strip has an average width of 30 kilometers.

The coal is contained in sandy, Rhtic schists and seems to be allocthonous, that is, formed of vegetation carried down by rivers from the region where it grew. It is an anthracite of high calorific power (7,500 to 8,000 calories) similar to the best Welsh grades and produces neither fumes nor slag. For ordinary use it is often mixed with bituminous coal. It is a good fuel for locomotives and ships. Forced draft furnaces can even use it unmixed as, for example, in some ships and for central heating. On the other hand, it often has the disadvantages of being brittle and yielding a large proportion of small coal (an average of 61 per cent small coal and ungraded coal for the whole basin in 1937). Moreover, this friability varies a great deal, according to the degree of metamorphosis undergone by the coal beds on contact with the volcanic eruptions which have penetrated them. For example, the beds in the central chain which have been worked in the last few years (the Clotilde-Louise and Françoise grants) yield a much harder anthracite—which, in 1937, enabled the Société des Charbonnages de Dong Trieu to reduce the percentage of small coal in its total production to 37 per cent.

The size and character of the beds also vary considerably. The great Hatou seams can be worked to a depth of from 50 to 60 meters and the Campha mines to a depth of 80 meters; elsewhere, intercalated between barren schists, a series of thinner beds are found, from 60 centimeters to a few meters in depth, as for example, in the Dong Trieu region and on the Ké Bao Island.

The beds are often quite irregular and broken by faults. They "exhibit numerous secondary ridges running roughly north and south whose anticlinal sides seem to have been eroded; thus, seams whose slope varies not only in angle (from 30 to 70 degrees) but also in direction (toward the east or toward the west) crop out successively from west to east."⁸ In general, however, the angle is slight. Working the mines is greatly aided by the nearness of the seams to the surface. It has been possible to work several beds by the open-pit method, called *découverts*, the most startling characteristic of the coal mining landscape in the Far East. For example, the Hatou and Campha open-pit mines are gigantic black amphitheatres cut in steps into hillsides, and crawling with workmen. However, open workings are becoming increasingly difficult and burdensome as the depth of non-coal bearing soils which must be cleared away becomes greater. Its proportion of total coal production has diminished rapidly to as little as 34 per cent in 1937. Today anthracite comes chiefly from underground mines, extracted by galleries cut into the hillside above the vein or by shafts cut below it, the deepest of which, at Mong Duong, goes down 200 meters. Mong Duong is north of Campha; it is in this eastern part of the coal region where production is expanding most rapidly today, surpassing the older Nagotna and Hatou enterprises near Hon Gay.

The Quang Yen basin has been one of French capital's most successful ventures in Indo-China. There are quite a number of small coal mines there, operating sporadically, and producing some thousands or tens of thousands of tons. But most of the anthracite is mined by two large companies, the *Société des Charbonnages du Dong Trieu*, which did not really get

⁸ F. Blondel, *Les ressources minières de la France d'outre-mer: le charbon*, Paris, 1933, p. 129.

under way until after the World War and which produced 484,000 tons of anthracite in 1937, and the *Société des Charbonnages du Tonkin*. The latter was established earlier but had difficulties at the outset largely due to drainage problems. It did not begin to pay dividends until 1900; since then its success has been assured and it has even taken over other mines, for example, those of the *Anthracites du Tonkin* and of *Ké Bao*, an island where exploitation was interrupted by the financial panic of 1901 and not resumed until 1924. In 1937 the *Charbonnages du Tonkin* produced 1,639,000 tons, or 71 per cent of Indo-China's total; the two leading companies combined, the *Charbonnages du Tonkin* and *du Dong Trieu*, produced 92 per cent of the total.

These enterprises have begun mechanization by installing mechanical coal cutters—percussive machines, pneumatic picks and electric chain cutters. Nevertheless, the mechanically mined tonnage is still very small, representing only six per cent of the entire coal production of Indo-China in 1937. The gallery props are made of wood from Tonkin, Annam and Japan, although the two big companies are using more and more metal framework. The danger from fire-damp is slight but floods are a greater hazard, especially after the heavy rains which fall between May and September. Most of the underground mines are illuminated by acetylene lamps. The number of accidents is relatively small and compares favorably with the record of coal mines in other countries, which is quite remarkable considering the instability of Indo-Chinese laborers, and the carelessness and irresponsibility which they often exhibit.

The exterior facilities of the Quang Yen basin mines are often quite modern. Sixty centimeters or meter gauge railways connect the mines with shipping ports. The ports for the Dong Trieu coal mines are located on the Song Da Bach, a river running along the southern slope of the Mao Khé range; the main one is Port Redon, the terminus of a twenty kilometer line which stretches northward as far as the mines of this central range. Boats drawing eight meters can reach Port Redon, where they are loaded from barges. Coal from the eastern zone, with the exception of Ké Bao which ships to Port

Wallut, is sent from two ports located on the Gulf itself, the old port of Hon Gay and the newer one at Campha which can be reached by ships drawing nine meters. These ports are provided with wharves and cranes, the wharf at Campha having four electrically operated booms which can load two ships at a time, at 500 tons an hour. The sifting and washing sheds have been steadily enlarged and improved. Hon Gay has the main factory of composite fuels, such as briquettes, which are combinations of the local product with bituminous coal and tar imported from Japan. A central 4,000 kilowatt power plant is connected by high tension lines with Hon Gay, Hatou and Campha, whence electricity is distributed over secondary lines to the mines of the *Charbonnages du Tonkin*. The Dong Trieu coal mines likewise have a central power plant at Uong Bi, north of Port Redon.

Up to the present the Quang Yen mining operations have, on the whole, only touched the surface of the supply. The size and position of the strata are not fully known, but "one fact is beyond dispute and that is that the present annual production could be greatly increased without changing the practically inexhaustible character of the reserves."⁹ The large enterprises are already equipped for far greater activities than present sales opportunities warrant; it is widening markets which will govern the future growth of the mines.

2. Secondary Deposits. The two other coal mines now in production—those at Phan Mê and Tuyen Quang—are situated in central Tonkin north of the Red River. In 1937 they produced only 43,400 tons, or scarcely two per cent of the total Indo-Chinese production. These beds are not so rich and both operating and transport conditions are much less favorable than in the Quang Yen basin. Their principal advantage is that they furnish a type of fuel not found in the latter.

The Phan Mê basin lies fifteen kilometers northwest of Thai Nguyen, at the western extremity of the Quang Yen basin where the curves of the post-Triassic virgation crowd together. Intermittently since 1910 a number of other rich Rhetic deposits have been worked here; they are vertical in slope

⁹ *L'industrie minière en Indochine*, Hanoi, 1931, p. 40.

and roughly lentiform.¹⁰ Mining is done by shafts running down about 100 meters. The coal is transported by a 60 centimeter gauge railway and then by water to the delta, through the Song Cau and the Song Cau Canal to the Song Thuong.

Among the many small lignite beds—lacustral sediments which were deposited during the Miopliocene period in the synclinal depressions of northern Indo-China, paralleling the Red River—only that at Tuyen Quang, which was opened in 1915, is still being worked, and to a depth of about 60 meters; the lignite is loaded onto junks which carry it down the Clear River.

Bituminous and semi-bituminous coal is found on the southern border of the Tonkin delta, running in a strip about 125 kilometers long between Ninh Binh to Van Yen. Operations were attempted north of Phyl Nho Quan, particularly in the Dam Dun region where a shaft was sunk 135 meters into a group of thin veins, very uneven and interrupted; but work had to be suspended in 1931.

Outside of Tonkin, about 40 kilometers southwest of Tourane, there is an anthracite bed similar to that at Quang Yen. This is the Nong Son bed which was also being worked at the time of the French occupation. It produced 280,000 tons of coal between 1900 and 1920, but operations were suspended when the exhaustion of the surface seams necessitated the sinking of a shaft.

Metals: Most of the metal deposits now known in Indo-China had been worked by the Chinese and were rediscovered by French geologists and prospectors after the pacification of the back country. Systematic working and outfitting of the mines were only just started at the beginning of the century. Among the minerals, zinc and tin are far ahead of all others, both in value and in continuity of extraction.

Zinc: Zinc ore is found in the great mass of primary limestone rising north of Tonkin between the Clear River, the Red River and the Hanoi-Lang-son railway. This mass was furrowed by a very complicated pattern of fissures which have mineralized and at certain depths contain seams of blende

¹⁰F. Blondel, *Les ressources minières de la France d'outre-mer: le charbon*, *op. cit.*, p. 433.

(zinc sulphid) from which the Chinese formerly extracted metal to make the sapek coin. Calamines (native carbonates and silicates of zinc) related to the ore strata occur close to the surface, either as outcroppings in the limestone near the schists, or as red lands, filling great hollows, and concealing the calcareous rock. When scraped, the latter presents a very uneven surface full of holes and bristling with pointed rocks, which is characteristic of karst. Today it is largely the calamines, usually untouched by the Chinese, which are worked in surface tiers.

The principal deposits were discovered between 1905 and 1910, north of Tuyen Quang and Thai Nguyen; those of Trang Da, Lang Hit, Thanh Moi, Cho Dien and Yen Linh were put in operation one after another. Production has not been steady but has varied according to the export market, which in turn depended on the world price for the ore, on freight rates, on government support in the form of tariff protection or bounties¹¹ and on currency devaluation. Charts¹² indicate that 1916 and 1926 were peak years, separated by a deep depression which reached its lowest level in 1920, when Japanese metallurgy was in difficulties resulting from the loss of its Russian markets after the revolution.

Since 1926 decreased prices have pushed production down. The introduction of flotation and electrolysis now makes possible the economical processing of zinc ores which had formerly been neglected because of their low metallic content but which have the advantage of being associated with other ores, especially copper.

It was for this reason that mining had to be confined to the Cho Dien calamine beds in Bac Kan province. They belong to the *Compagnie Minière et Métallurgique d'Indochine*, which acquired them in 1920-21. Until 1924, exports consisted of untreated zinc ores, but the company has now built a three-

¹¹ The money already spent on the mines and the scarcity of zinc in the Far East led the government to grant financial aid to the *Compagnie Minière et Métallurgique*, allocated in the form of premiums since 1935, after the dissolution of the international producers' cartel. But the rise of the world price of zinc and the devaluation of the piastre, concurrently with the franc, soon suspended the granting of these premiums.

¹² *L'industrie minière, op. cit.*, p. 13.

furnace foundry at Quang Yen, near Haiphong and close to the coal supply, which converts all present production into metal. Cable cars bring the ore down into Ban Thi valley, where a 35 kilometer Decauville track carries it as far as the Song Guam, left hand tributary of the Clear River. Zinc ore production dropped from 61,900 tons in 1926 to 10,600 in 1937, which was equivalent to 4,900 tons of metal.

Tin: Because of favorable trade conditions, tin production has been greater than zinc ever since 1928.¹³ In 1929, zinc accounted for 9.7 per cent of the total mining production of Indo-China and tin for 10.6; but by 1937, zinc had fallen to 2 per cent while tin had risen to 29.5 per cent, although it should be pointed out that the latter figure included tungsten which is found in combination with the Pia Ouac tin ore.

At first European mining of tin ore was confined to Tonkin, as zinc mining still is today. The Tonkin beds are all located in or near the Pia Ouac mountain range, some 60 kilometers west of Cao Bang. Rising to a height of 1,930 meters, it consists of a granite residuum penetrating the primary schists which were metamorphosed into aphanite on contact with it. On the north and northwest slopes of the range this aphanite is traversed by very thick veins. Thinner seams of tungsten and tin, wolfram and cassiterite are found on the south and southeast slopes, sometimes combined into stockworks. European companies principally use the eluvial and alluvial soils enriched with cassiterite by erosion, which has naturally removed the least dense substances. Thus the karstic basin of Tinh Tuc, hollowed out of primary limestone, is filled with such soil to a depth of more than 40 meters in spots; worked by the open-pit method since 1906, it remains the most productive cassiterite bed in Tonkin.

Mining operations around Tinh Tuc have been increased through the activities of three leading companies, now combined under a single management. For several years the Pia Ouac cassiterite was converted into metal at Ta Sa, 25 kilo-

¹³ *L'industrie minière, op. cit.*, p. 20. The plan for the international control of tin was renewed on January 1, 1937, and will be in force until December 31, 1941. The standard tonnage for Indo-China remains at 3,000 tons and, in any case, that colony would be entitled to a minimum production of 1,800 tons.—P. Guillaumat, article cited, p. 1271.

meters from Cao Bang; since 1929, this has been done at Cao Bang itself. Reverberatory furnaces burn lignite from a small neighboring bed. Today [1939] it is more advantageous to send the ore itself, after it has been washed, to the big English plants at Singapore where Tonkin cassiterite, known for its purity and high metal content, is mixed with inferior grades. A motor truck road connects Tinh Tuc with the railroad station at Na Cham, 280 kilometers from the port of Haiphong.

For the past several years the production of tin in the Nam Patène basin in Laos has exceeded that at Pia Ouac. The Nam Patène River is a left hand tributary of the Nam Hin Boun, which itself flows into the Mekong at Pak Hin Boun, north of Thakhek. Cassiterite has been mined here from time immemorial by the Laotians who dug small shafts a few meters deep into the alluvium. Native mining continues today on the European concessions, the ore being purchased by the companies. Formerly, after careful sorting, the richest particles were crushed, washed in cradles and reduced in Chinese charcoal-furnaces. But about 1920 production was still a mere ten to fifteen tons a year; it was exported to Thailand where it was used only as ballast for fish nets.

It was not until 1923 that the *Société d'Études et d'Exploitations Minières de l'Indochine* began to work the beds systematically. Veins had first been discovered in the eluvium and alluvium of a huge karstic basin some 30 kilometers long and 8 wide, cut into the Uralo-Permian limestone which dominates it with dramatic masses and sheer, almost insurmountable slopes. The eluvial cassiterite is joined in depth to the veins which pass through the Muscovitic sandstone subjacent to the limestone, and which have been metamorphized by granite intrusions. Here it is not associated with wolfram as it is in Pia Ouac. It is about ten meters thick with a thin covering of unproductive soil; mining is quite easily performed by the open-pit method, under a "cai's" direction. Almost all the ore extracted up to the present has come from the Phon Tiou bed on the Solange grant. The 1926-1929 boom brought about the formation of other companies whose grants are worked by the *Compagnie Fermière des Étains d'Extrême-Orient*. Production started in 1933 and is carried

on around Boneng. They have begun cutting out the veins, whose reddish chimneys stand out between their white sandstone wells.

Laos ore is harder to work than Tonkinese because of its lower metal content and the presence of considerable amounts of sulphurous and ferruginous matter. In addition, coal is scarce here: *producer gas gazogenes* run the dynamos which produce motive power, but they consume enormous quantities of wood, which must be cut farther and farther away from the mine. As a result, the ore has never been smelted on the spot. But mechanical processes for separating and purifying have gradually been set up at the mines. For example, after crushing and magnetic separation, very well-equipped washers prepare concentrates for export. Under sloping roofs, powerful machines stand in tiers one above another on the hillsides, so that the water and the gradually purified product itself are moved as much as possible by mere gravity from one process to another. The mud and rocks, which were dumped out of small wagons at the top of the mill, appear as black cassiterite crystals at the bottom where they fill little 35 or 50 kilogram sacks for shipment to Singapore. They are transported either via the Mekong or over the roads from Thakhek and Savannakhet to the Annam coast. Six thousand Annamites work in the tin mines of the Laos basin; though a few are Tonkinese most of them come from Nghê Tinh. Work is done by gangs and goes on continuously since the machines can be stopped only at great expense; at night this isolated basin, surrounded by rugged mountains and dotted with electric lights which furnish illumination for the coolies as they work to the accompaniment of the mills' unrelenting rhythm, is a striking picture.

Indo-China's total tin production in 1913, based on the weight of the ore's metal content, was only 44 tons; in 1922, before the opening of the Laos beds it grew to 410 tons and to 1,602 tons in 1937, 959 tons coming from Nam Patène and the remainder from Pia Ouac. This increase in tin production contrasts with the decline of zinc production.

Other useful ores: Other useful metallic ores are only a very small item in Indo-China's production. One of these is wolf-

ram, which is found in association with the Pia Ouac cassiterites. Statistics on the relative value of the two ores are lacking. Wolfram exports were over-stimulated by the rising price of tungsten during the World War and since 1934 they have been increasing again but today wolfram production is much smaller than that of tin.

More or less argentiferous lead ores are found together with zinc ores in most beds, and it was these for which the Chinese sought particularly. French companies have attempted to reopen the mines, particularly that at Ngan Son south of Pia Ouac, but without success. The *Compagnie Minière et Métallurgique de l'Indochine* exports a few tons of lead ore and some tens of kilograms of silver, mere by-products of the company's zinc mining.

Antimony has been mined only intermittently in Tonkin (in the Mon Kay and Hon Gay regions) and in North Annam. At Co Dinh in Thanh Hoa there are some high quality chromiferous deposits, alluvial deposits originating in periodotites; but, already equipped with a washer capable of treating up to 1,000 tons per day, the works had to close down in 1931 after only a few months' operations because of the fall in prices.

During the last few years much has been said about Indo-Chinese iron and iron ore has been found in several places; for example, Phnom Deck hill, north of Kompong Thom in Cambodia, has a hematite and magnetite pipe vein, the result of a superficial lateritic concentration; it is worked by Indonesians (Kouy) who make tools of it which are well-known among the natives. But the most promising beds seem to be those in the section which prospectors call the line of iron (*ligne de fer*), near Thai Nguyen in Tonkin about 20 kilometers long. One of these beds has produced big blocks of hematite and high quality magnetite; but it is still impossible to estimate roughly the extent of the utilizable ore: "the origin of these beds, which F. Blondel said might be the result of a concentration of lower beds . . . is, in fact, quite unknown."¹⁴ Another deposit is mined by the open-pit method

¹⁴ From C. Jacob, *La géologie et les mines de la France d'outre-mer*, Paris, 1932, p. 436.

on the island of Ké Bao by the *Société des Charbonnages du Tonkin* and in 1937 produced 16,000 tons of ore which averaged 45 per cent iron. Part of this was sold in Haiphong for the manufacture of certain cements.

Small quantities of manganese ore from Tonkin and North Annam have been exported to Japan, which wants more and more. But even should Indo-China prove rich in iron ore, that fact would not be sufficient to justify extensive exploitation; transport and markets problems would have to be solved first, and the possibilities of refining the ore on the spot in siderurgic plants more seriously considered than it has been up to now.

Gold: Gold mining is carried on by the natives in many sections of Indo-China, particularly in Upper Tonkin. It is a seasonal occupation and one yielding small returns, which is carried on on new alluvions, or on older, packed down alluvions or, sometimes, on the eluvial soils covering the slopes. In 1937 gold mining produced an estimated 130 kilograms of metal, 101 kilograms coming from Upper Tonkin. Many of the surface deposits have been granted to French companies, but most of these either never began operations or had to close down very soon; dredgers imported at great expense and now abandoned stand here and there as witnesses to vain hopes.

The only gold mine which is now being worked by a European company is that at Bong Mieu in Quang Nam province in central Annam, about 100 kilometers south-southeast of Tourane. Here gold is found in quartz veins running through gneiss and mica schists. The veins would be continuous for considerable distances and on many levels, but they are broken by faults. In former times the ore was mined for the Court of Huê. Between 1895 and 1919 well-equipped French companies mined the precious metal but the quantity produced never exceeded 100 kilograms a year. Operations were then abandoned and not resumed until 1933, producing 173 kilograms of fine gold in 1937. The mining is done by means of galleries provided with Decauville tracks; only the richest lenticular pipe veins are worked, the low metal content materials being passed over. The company operates a hydro-electric

plant and a cyanide processing mill. The final smelting is done in a crucible at regular intervals, producing 40 per cent metal content material, which is sent to France by post.

Miscellaneous Mineral Products: When graphite, phosphates and precious stones have been mentioned, a pretty complete picture of the mining production of Indo-China has been presented, but, compared to that production, these minerals are a very minor matter. The cement and salt industries will be discussed later.

Graphite mining is not being carried on today, although it was quite active around Lao Kay between 1924 and 1928. A bed set in the gneiss on the left bank of the Red River yielded more than 800 tons of salable graphite in 1926.

Indo-China's phosphates are found in small, discontinuous deposits not to be compared with those of North Africa. They fill the fissures and cavities in calcareous rock. When calcined and ground, however, they constitute an important fertilizer for local agriculture—26,000 tons of ground phosphate being produced in 1930 and 20,000 in 1937.

Lastly a few precious stones, chiefly sapphires, are extracted from the alluvial soil at Pailin, south of Battambang, and at Bokeo in Stung Treng province, Cambodia. The miners are Burmese settlers; the stones are gathered after the ore is washed by running water in primitive sluices. At the beginning of the century when the region was still under Thailand's domination, the prosperity of these mines assured the livelihood of some 10,000 persons at Pailin. But today the seam appears very impoverished, although the total value of the known production in 1937 was about 100,000 piastres.

Characteristics of the Mining Industry: It is easy to point to the failures of mining operations in Indo-China. But enumerating frustrated and liquidated projects is not enough. There are strange stories to be told of men and events—dramatic tales which are sometimes amusing and sometimes tragic. Official reports and statistics are only schematic, superficial records. To tell the whole story we would have to describe the adventures of the prospectors, exploring the mountains, breaking up the rocks and "discoursing" with them, on the alert for valuable information from the natives; to recall the

mortal toil, the hopes and disappointments, the trickeries of some of the discoverers and prospectors.

The unparalleled prospecting rush between 1925 and 1928 is particularly fruitful in tragi-comic anecdotes. Alongside the prospector our story would place a business man, either a member of the local white colony or just stepping off the gang-plank after the trip from Europe. Next would come a description of the activities of joint stock companies—how they raised capital and distributed beautifully decorated, engraved certificates to stockholders. Launching a new enterprise often depended very much less on a careful study of the conditions than upon an advertising campaign. The purchase of powerful machinery was generally part of the scheme and was recorded in financial journals; the equipment would be assembled at some well-known European port; it would then be shipped and its final arrival in Indo-China announced, together with a glowing account of what it was going to accomplish. The stock quotations sky-rocketed before a single ton had been taken out of the fabulous mine. Some time later came sudden collapse. To write the true story of some of the most typical mines in Indo-China would be an interesting, but arduous task entailing searches of newspaper files, interviews of participants and witnesses, securing access to official and private records and showing the relation between the coal mine directed by the expert—the “colonial miner” of great practical experience who had already worked graphite in Madagascar, gold in the Andes or Venezuela, or copper in Mindouli—the bank and board of directors sitting in Paris and, finally, the stockholder who often lived in the remotest corner of a French province, had only the vaguest of notions about the enterprise and swung from hope to disappointment according to stock market fluctuations.

But, after all, it is the nature of mining ventures in new countries to experience growing pains and to progress spasmodically. It is not only in Indo-China that a mine bed has made a fortune for one company after having ruined several others. For all this, Indo-China's fitful mining activity has had some lasting results. It has already transformed certain parts of the country; mineral products hold a not unimportant

position in the colony's exports and seem destined to increase pretty steadily. Many of the big companies are directed with a forethought and soundness comparable to the policies of the most reputable firms in the mother country.

The value of Indo-China's mining production, which was less than two million piastres at the beginning of the century, had increased to more than eight in 1916 and passed eighteen in 1929; falling to a bare ten million in 1934, it rose again to more than nineteen million in 1937. Currency devaluation, however, must obviously be taken into account in this connection, which reduces the latter figure to a maximum of twelve million in terms of the 1929 piastre.

In 1937 the Indo-China mines employed 271 Europeans, who worked as managers, engineers and other technicians, and 49,200 Asiatics (as compared with 370 Europeans and 45,700 Asiatics in 1930). About 25,000 of the Asiatic laborers were employed by the *Société des Charbonnages du Tonkin* alone. The Chinese, being more energetic and conscientious than the Annamites, were of great assistance in launching the first enterprises in Tonkin. They are still preferred in certain skilled occupations, such as timbermen, carpenters, millwrights, blacksmiths and mechanics. But they demand higher wages, so there is a growing tendency to replace them with Annamites. Some Laotians are employed in the Nam Patène tin mines to do prospecting, clear the land and pull small wagons; likewise, some Moi come down from their villages to work in the Bong Mieu mines. But about nine-tenths of the labor supply in the European mines is made up of Annamites from the Tonkin deltas or north Annam—the latter sending many workers to the Nam Patène basin, in particular. According to P. Gourou, the largest contingents from Tonkin came from the provinces of Thai Binh and Nam Dinh, which account for almost 60 per cent. "There is scarcely a village in these two provinces which does not have some mine workers; Kien An province, where Haiphong is located, supplies many skilled workers."

There is a trend toward stabilizing the labor supply, thanks to the endeavors of several companies and, especially of the largest one, the *Société des Charbonnages du Tonkin*. In

1931-32 the number of workers changed constantly, with a maximum number at work after the Annamite New Year festivities, a pronounced low during the fifth month harvest, and another upsurge during the seventh month; for every hundred workers in the mines of the Hon Gay basin at the beginning of the Annamite year, there were only 33 in the fifth and at most 66 in the seventh month.¹⁵ Since that time the fluctuations have become less pronounced. The number of coolies working in the newer and more remote mines has increased gradually during the last few years, especially at Cho Dien in Upper Tonkin as well as at Ban Phon in Laos. Most of them, however, come only for a few months and leave when they have earned a little money. In the Nam Patène basin at the beginning of the dry season many workers turn in their pick-axes and leave for home, either in trucks or on foot, carrying their packs and straw mats.

Working conditions in the mines have improved somewhat. Not long ago the mines were described—perhaps with some exaggeration—as “the hell of Hon Gay.” In the hinterland sanitary conditions were often lamentable. Among the Annamites the Nam Patène region earned the name “death valley.” Biliary hemoglobinuric fevers were very prevalent. Since 1931 the approaches to the mines have been cleaned up according to the recommendations of the Pasteur Institute. Mosquito breeding pools are sprayed with oil. Quinine is distributed to the night crews as a malaria preventive. A study of the sickness and death rates indicates the efficacy of these measures taken. Several years ago villages of separate houses were built close to the principal mines, each village having its own infirmary. In the various centers, there are hospitals and schools, built and maintained by the companies themselves or with their financial aid; athletic fields for football, tennis and other sports have been set out.

The Société des Charbonnages du Tonkin has successfully undertaken to recruit and pay its own workers, rather than working through the traditional Annamite labor contractor, or “cai.” This new method, however, has not yet become general. While the system of labor contracting gives rise to certain

¹⁵ P. Gourou, *Les paysans du delta tonkinois*, *op. cit.*, pp. 214-215.

abuses and it is difficult to control the relations of the *cai* toward his crew, his services cannot suddenly be done away with completely. "Certain types of work cannot be effectively carried out except by sub-contracting; this is especially true of some of the tin mines in the Upper Tonkin basin, which are located in inaccessible mountainous regions. These mines are widely separated and sometimes several hours' journey from the residence of the European overseer. They cannot be worked except by small crews from whom the ore is bought once a week through the crew foreman."¹⁶

Nevertheless, growing technical skill led to better methods of recruiting and organizing personnel, particularly in the large coal mines. Work in the surface mines was a coolie's job. "He adapted well to the customs of the century . . . ; he worked his task without stipulated hours, which allowed him to work, eat and sleep whenever he pleased." The worker came and went as he wished; there was little mechanization, safety measures were very lax, the subordinate supervision could be entrusted to Europeans lacking professional training. But underground work demands a real miner.¹⁷

While there are fewer European superintendents in the mines today, they are far better trained than formerly. In addition, native overseers are now being used. In 1930, the biggest company opened a school to train them, which now accepts workers from other mining companies as well; there both theoretical and practical instruction are given by the company's engineers and mine captains. Moreover, officials are considering the establishment of a school for native mine captains at Hanoi. Obviously, it is just as desirable to increase the employment opportunities open to natives in mining as it is in other trades and professions.

In the organization and management of mining enterprises, however, the natives and native capital still play microscopic parts. To be sure there are some companies with Annamite names, but although capable of developing small deposits to which temporary circumstances have brought a revival, they

¹⁶ Report of M. F. Blondel to the Committee on Indo-China (meeting of October 2, 1936, p. 42).

¹⁷ P. Guillaumat, *L'industrie minérale . . .*, *op. cit.*, pp. 1315-1316.

are unable to finance the *prolonged effort so often required*. It is much easier for the native to set himself up even in highly developed manufacturing industries.

Processing Industries

The free development of industry has never been allowed in any colony; even the possibility of such development was long considered paradoxical, almost inconceivable, by the mother country. Indo-China has not escaped this rule. Undoubtedly the mother country's regulations and tariff legislation have contributed many of the features of the colony's present economy, and particularly explain the slow development of processing industries as compared with agriculture. The workers employed in modern industry, exclusive of plantations and mines, were estimated at 86,000 in 1929, the peak before the crash. Probably their number is scarcely greater today.

Yet, of all the French colonies, Indo-China seems particularly suitable for industrial development. In the first place there is an abundant labor supply, relatively skilled and tractable and accustomed to a very low standard of living; another factor is the apparently inexhaustible fuel supply.

Added to these favorable conditions are the remoteness of the mother country, Indo-China's position among a group of primitive countries, and the proximity of dense populations whose purchasing power is increasing gradually. It is not surprising that, ahead of the other colonies, this country early deserved a certain economic independence which it acquired by carrying on manufacturing which a more rigid imperial policy would have reserved for the exclusive profit of the mother country.

As a matter of fact, in the diversity and, particularly, the value of its modern industrial production, Indo-China easily ranks first among French overseas territories. This industrial activity is unevenly distributed throughout the country. The sparse population and difficulties of transportation have kept it almost non-existent in the mountains. It is in the Red River delta that it has found the greatest advantages—abundant population, the superiority of the Tonkin laborer over those

of the other Annamite plains, and the proximity of the Quang Yen coal supply.

Information about industry is not as complete or as systematically organized as that furnished by the annual reports of the Department of Mines. Available data on the value of production, the source of the material handled and the destination of the manufactured article, the number and origin of the workers, and working conditions, leave much to be desired. Such data are either impossible to obtain or would take long and careful research since existing records are scattered and frequently not comparable; the recent depression closed a great many undertakings and curtailed operations of many others; in some cases, new ventures have been initiated.

It is impossible to undertake here a detailed description of the development of Indo-China's modern industries. Only the main outlines will be drawn: first, the industries which are most important by virtue of their output; and second, a few more modest enterprises which are significant because of the form and nature of their activity.¹⁸

Industries may be classified as follows:

1. Industries which process the natural products of the land, both mineral and vegetable.
2. Industries processing agricultural and pasturage products.
3. Miscellaneous industries.

Processing of natural products of the land. We shall not review here the processing industries allied with the extraction of coal or minerals, such as the manufacture of coal briquettes, zinc smelting and the concentration of tin and gold ores. Mention should be made, however, of the refinery at Haiphong which treats some of the tin ore which comes down from Yunnan.

At Haiphong, too, and near the coal mines, are a great many industries such as cement, ceramics and glass-making, which are both large users of fuel and dependent on water transport for their bulky products. One of the oldest and biggest factories in the colony is the cement plant at Hai-

¹⁸ According to a study by M. Guy Lacam, the production of modern processing industries increased in value from about 10 million piastres in 1901 to 180 million in 1937.

phong, founded in 1899 by the *Société des Ciments Portland Artificiels de l'Indochine*. Its location was determined by the proximity of coal, limestone and clay supplies, and ocean and river transport facilities. These favorable circumstances have fostered a remarkably steady development from a modest beginning (2,000,000 francs initial capital). Supplementing and then replacing the upright kilns of the original factory, rotary kilns have been installed since 1926 and now have a production capacity of 300,000 tons a year. The company has its own power plant, shops for the manufacture of wooden barrels and steel drums, and automatic fillers for jute or paper bags. Its products are excellent and highly regarded all over the Far East, although the principal market is in Indo-China itself, where the construction of permanent buildings, bridges, dams, wharves, etc., requires ever increasing amounts of cement. Total production was 183,000 tons in 1929, 22 per cent of which was exported to foreign countries; after a sharp decline from 1933 to 1935, it rose again in 1937 to 235,000 tons 53 per cent of which was exported. An average of 4,000 workers were employed by the cement industry in the latter year.

Another much more modest enterprise is closely linked financially with the former—the Lang Tho factories near Hué, which manufacture not only cement, but also rough and glazed terra cotta articles, as well as hydraulic lime.

Building activity has increased the number of brick-kilns and tile works, for which there are inexhaustible supplies of raw material in the delta alluvions. While this industry is scattered and carried on by a large number of companies, it sometimes produces rather heavy concentrations of labor, as for example in the Yen Vien brick works near Hanoi, which employed 200 workers in 1929.

Plants at Haiphong, Hanoi and Saigon produce pipes and artificial stones for use in the construction of public works, buildings and plantations, as for example, sluice-gates and canal intakes, septic tanks, reservoirs and cisterns, vats for latex, etc.

Besides the small native and Chinese glass works of Hanoi, Nam Dinh and Cholon, there is a modern factory at Haiphong

which employs 200 workers. Following an agreement with French manufacturers in 1933, this company stopped making window glass in order to devote itself to bottle making, producing 2,900 tons in 1937.

Finally, there are two china factories, one at Hanoi and one at Haiphong. In 1937 some 300 laborers were engaged in this work, turning out crockery, insulators, and so forth. Most of the ordinary earthenware used by the natives still comes from Annamite or Chinese workshops.

Wood. Since forest land covers about one-third of the total area of the country, it is surprising that wood products occupy such a minor place in Indo-China's industrial activity. As a matter of fact, however, in large sections of the so-called wooded areas, trees have been replaced by tall perennial tropical grasses, and where they have not completely disappeared are found in mere isolated clumps or bordering the rivers; in other words the forests have often become prairies. Even where there are real stands of trees—varying in density but continuous and regular—these are not virgin forests except in very small areas which are usually inaccessible. Almost everywhere the forests have suffered abusive exploitation at the hands of man.

This devastation of Indo-China's forests began long before European intervention. There were various causes, the chief one being agricultural methods practised by the natives outside the irrigable areas, which were based on forest fires. The forest became more and more impoverished by the periodic repetition of these agricultural fires. Since the French occupation, however, deterioration has undoubtedly been speeded up by the demands for lumber and wood fuel created by the industrial development of the deltas,—for urban and industrial building, for building railways and mines, for fuelling locomotives and steam launches, and so forth.

Despite expert warnings and earnest entreaties, the Forest Department for many years has been little more than a fiscal collection bureau, engaged in taxing the lumber coming down from the hinterland at certain inspection points, usually located on the waterways. The junior personnel, often of questionable competence, was much too small to conduct

experiments which might have led to the regeneration or at least the preservation of the forests. However, improvements are now under way, thanks to a better recruiting system for the forestry service. "Registered" reserves have been inaugurated—woods in which no lumbering is permitted except under government control. One of the most successful of these new endeavors is the protection of the vast Cochin China mangrove forests south of Camau, which for several years have been lumbered methodically and which should foster the steady regeneration of the trees. Reforestation has been attempted both here and in other areas. In general the results are still rather modest, one of the most noteworthy being the stabilization of sand dunes on the Annamite coast by plantings of casuarines; not only do these assure the protection of fields formerly covered periodically by sands, but they will soon supply Indo-China's mines with shaft and gallery timbers, which are often imported from abroad today.

As yet, however, systematic cutting is practised only in a small portion of the wooded areas. Elsewhere, lumbering and the exploitation of other forest products remain almost entirely in native and Chinese hands and are wastefully and unintelligently carried on. Felled and rough-hewn logs are hauled by buffaloes to various assembly points where they are bought by natives or Chinese traders and then sent down to the lowlands during the favorable seasons. The big lumber company, typical of Gabon, the Cameroons or the Ivory Coast, is not common in Indo-China and the white woodcutter, working on his own, is the exception.

One reason for the white man's disinclination for the lumber trade is the difficulty of export. Types of lumber which are valuable enough to bear the cost of shipment to overseas markets are very rare. Even teak, that product of the Indian sections of monsoon Asia which is so sought after for shipbuilding, is only found in small scattered clumps, in Upper Laos where it has provided much less business to a French lumber company than have Thailand's teak groves. Some European companies have combined woodcutting with plantation agriculture, particularly in eastern Cochin China. Lumbering, when carried on by European colonists, is usually a

mere auxiliary activity, compensating in part for the costs of clearing, and enabling the owner to wait for the profits from his plantation and to keep his coolies busy in slack times. Most lumber products—wood, charcoal, etc.—are consumed locally. It is the Chinese and Annamites who are responsible for the enormous production of charcoal from the southern mangrove trees for use in Cochin China and, especially, in Saigon-Cholon. The charcoal is produced in batteries of big kilns, sheltered in thatch buildings, on the edge of the "rachs." The sale of wood abroad is only an insignificant item in Indo-China's export trade.

The processing of forest products has, nevertheless, created several modern industries; not only sawmills, scattered here and there all over the plains and in the south, are often Chinese-operated, but also match factories and paper mills. Two match factories which also operate saw mills are located in the north Annam deltas, one at Ben Thuy, the port for Vinh, the other at Ham Rong near Thanh Hoa. In fact here the forests of the back country are less depleted than those of Tonkin and furnish abundant supplies of excellent lumber trees, such as *lim*, *tau*, and *sen*, as well as *bó dế*, or false benzoin, a tree of the *styrax* species which is used for making matches. This species, however, has become scarce in north Annam; today it must be sought chiefly in central Tonkin. A third match factory, subsidiary of the *Société de Ben Thuy*, has been established in a Hanoi suburb. Chemical materials (phosphorus, sulphur, potassium chlorate and paraffine) are imported from Europe. Employing 2,000 laborers on the average, the joint production of all three factories was 278 million boxes in 1937.

The forests of second growth softwoods can furnish apparently inexhaustible supplies of material for paper pulp manufacture. Moreover, the ever increasing number of publications of all kinds, newspapers, periodicals, school books, etc., both in Indo-Chinese and in French, is constantly widening the local paper market. Established in 1913, the *Société des Pape-teries de l'Indochine*, uses almost nothing but bamboo which is found in forests covering vast areas of middle Tonkin and consisting almost entirely of this one species. The company

operates two plants in Tonkin; one, at Viettri at the junction of the Red and Clear Rivers, makes the pulp which is then sent to the mill at Dap Cau on the Song Cau to be made into paper. This mill produces various kinds of paper: wrapping paper, thin Chinese or Annamite papers, ceremonial papers, and high quality and de luxe papers for printing. Paper production totalled some 3,540 tons in 1937.

Industries Processing Agricultural and Pasturage Products. Manufacturing the products of native agriculture is often done in family or village industries which remain widely dispersed, particularly in the Tonkin and Annam deltas. It is also carried on in many small factories and shops equipped with machinery, but these, too, are still quite scattered; they have been increasing in recent years. Finally, it is carried on in large factories which produce merchandise both for export and for local sale and are established in the large urban population centers, particularly in the seaport towns.

Rice Mills and Distilleries. Husking and bleaching paddy results in considerable savings on transportation costs.¹⁹ An increase in the number of rice mills necessarily accompanied the extension of the areas planted to that cereal and the consequent increase in the amount of grain available for export.

Although this industry is not wholly unknown in other centers, like Haiphong, it is largely concentrated at Cholon, the main rice market of Indo-China and one of the biggest in the world. In Saigon-Cholon there are 27 rice mills using more than 100 horsepower. The Cholon Chinese, the leading rice merchants and owners of most of the junks which carry the rice down the rivers and canals of Cochin China, also play a preponderant role in processing it. They seemed likely to lose this role after the 1937-38 crisis, when the failure of many Chinese enterprises followed upon the fall in rice prices, but they recovered very quickly. Today however, there are four large rice mills in Indo-China belonging to French companies, two of which are at Cholon.

Most of the Cholon rice mills are still located on the old

¹⁹ It is generally estimated that one ton of paddy processed in the rice mills yields 610-620 kilograms of white rice (including large broken rice), 40-50 kilograms of fine broken rice, and 100-110 kilograms of white flour.

Chinese Arroyo and its tributary, the Canal des Poteries, crowded with large gaily painted junks; recently some have been built along the Canal de Doublement. Their chimneys, visible for miles, bristle above the plains in Cochin China's population center. The rice mills are ugly buildings several stories high. They are built of corrugated iron because masonry walls would soon be cracked by the vibration of machinery. They house very bulky processing equipment, usually imported from Germany or America—ventilators for the preliminary cleaning of the material; huge emery millstones which do the husking and are made on the spot, of an extremely durable magnesian cement; separators which sort the unpolished rice, the bran and the husks; curious vibrators which use the differences in elasticity of the particles to eliminate the remaining paddy; cylindrical emery millstones with concentric movements which strip the grain of its last covering and transform unpolished into polished rice. At least in the French mills, usually much better kept up than the Chinese factories, one of the greatest concerns is the struggle against dust, both unhealthy and dirty. Paddy chaff is widely used as fuel.

In recent years and especially in Cochin China this great industry, financed by both Chinese and European capital, has been meeting competition from small Annamite factories producing irregularly for local consumption, something like the country mills in France. They generally comprise a very simple set-up consisting of a mill operated by fuel oil, placed under a shed. They are most active during transplanting and harvest—since the peasants do not then have time to husk with a pestle the rice necessary for family needs.

The maximum daily output of all the Cholon factories is estimated at 7,500 tons, a figure far exceeding the amount of rice exported. As might be expected these factories rarely operate at full capacity. Heavy production begins about the 15th of December and ends in June. During this time the rice mills employ more than 3,000 workers who are recruited either in the city itself or in the neighboring villages. In 1937 the large rice mills exported a billion francs' worth of rice.

It is estimated that the value of the rice crop is increased 80 million francs by processing.

Part of Indo-China's rice crop is made into alcohol. From time immemorial, the natives have used rice alcohol for family consumption and ceremonial rites. Distillation was carried on in many Annamite villages, but some made a specialty of it, as they did of the raising of pigs which were fed on the residue. In 1902 the Government of Indo-China, wishing to augment the general budget, put the manufacture and sale of alcohol under strict regulations. It was then that the *Société française des Distilleries de l'Indochine* began to develop, making practical application of processes based on scientific research by Dr. Calmette, director of the Pasteur Institute at Saigon. This company soon became the principal alcohol producer. Such concentration of the industry made tax collection very easy, but it created a practical monopoly which aroused much discussion. Small native industry was not completely destroyed, however, but became clandestine. Smuggling became harder to curb as the taxes went up and this resulted in investigations of village tax collections often accompanied by invidious secret accusations. Since 1933 new laws have been enacted; anyone may produce rice alcohol provided he pays the regular tax.

Because of the position it has acquired, its long experience and its superior commercial organization, the *Société des Distilleries de l'Indochine* still dominates the alcohol market. Its five big factories, three in Tonkin, at Hanoi, Nam Dinh and Hai Duong, one at Cholon and one at Phnom Penh, comprise both rice mills and distilleries. They also process sugar cane molasses into rum. Part of the alcohol is dehydrated and sold as a carburant to be mixed with gasoline. Special machinery produces a variety of by-products, such as rice vinegar, fuel alcohol, starch, glucose, lactose, and so on. This company employs about 40 European overseers and more than 1,200 native workers.

In addition, there are about fifty other distilleries financed by French, Chinese or Annamite capital, and owned by companies and private individuals, but their production is very irregular.

In 1937 the distilling industry used about 90,000 tons of rice and rice derivatives: unpolished rice, nêp (glutinous rice), broken rice and rice flour. It produced 339,000 hectolitres of pure alcohol, 156,000 in Cochin China and 146,000 in Tonkin. About 4,000 workers were employed.

Sugar Refineries: Only since the World War has French capital been interested in sugar production. Until then, small native industry extracted from cane a coarse brown sugar which was very popular with the natives and was exported, as well, in small quantities from Annam to Hongkong. Indo-China imported about the same quantity of white sugar, chiefly from Java and the mother country.

Based on the experience in neighboring colonies, particularly Java, where they had been highly successful and then languished, modern sugar refineries were established in Indo-China. After a period of trials and setbacks, the industry increased production under the protection of a favorable tariff. Of the three modern factories functioning today, two are in Cochin China not far from Saigon and the native sugar cane fields.²⁰ The largest is at Hiep Hoa and is owned by the *Société des Sucreries et Raffineries de l'Indochine*. Since 1930 and after the first difficult years, it has expanded steadily. The daily crushing capacity of this factory is 1,000 tons of cane, but the factory operates at slackened speed during the last months of the year since the harvesting is done from December to June. Production increased from 1,900 tons of sugar in 1930 to 10,000 tons in 1938. Tall evaporator vats with wooden sides, through which windows permit observation of the degree of crystallization, produce a very white, friable sugar about 98 per cent pure. Completely refined sugar is also being produced now. The cane is brought to the factory in sampans sailing on the Vaico River; seven hundred workers are employed, most of them sharecroppers on the company's plantations. They live in an attractive, comfortable village near the factory. Other sugar factories are those located at Tây Ninh in Cochin China north of Saigon, largely Chinese financed; and one at Tuy Hoa, the big cane-growing center in South Annam, backed by French capital. Total white sugar pro-

²⁰ See above, pp. 234-235.

duction increased from 3,000 tons in 1930 to 15,000 tons in 1938. All three factories also make rum and molasses alcohol.

The tobacco industry: Recently, the manufacture of tobacco has grown even faster than the sugar industry. At present there are four tobacco factories, two at Saigon and two, the most important ones, at Cholon. These four Cochin Chinese establishments employ about 1,500 workers. They produce some packaged tobacco, but cigarettes are their principal output. Almost negligible in 1930, cigarette manufacture totalled approximately 2,800 tons in 1937.

Vegetable oils and beverages: Oil extracting factories and soap works are very much more numerous today than they were before the war. Such products as copra, peanuts, cotton and kapok seeds, sesame, castor oil beans and hevea seeds, etc., are used. Some of the enterprises are French, but the majority are small native concerns. The largest company belongs to a Chinese-Annamite from Cholon who, ten years ago, was still operating with crude native presses; now he has a modern plant and can produce as much as 500 tons of soap a month.

As for the breweries of Hanoi, Haiphong, Cholon, and Phnom Penh, they largely depend upon imported ingredients. Created in the first place for the European clientèle, as were the plants for making ice cream, lemonade and carbonated water with which they are often associated, they have continued expanding to meet the increasing demands of prosperous natives. The annual beer production is estimated at 50,000 hectolitres.

The textile industry: Textile fibre processing is the type of industry which might have appeared to be reserved for the activity and profit of the mother country under a judicious colonial administration. Importing European fabrics into Indo-China began long before the French occupation, and it has increased considerably since.

However, in spite of this and because of its very unusual geographical and demographic situation, Indo-China was able to secure special exemptions from the mother country's privileges which had seemed untouchable; as a result, the colony has large modern factories which spin and weave cotton and silk.

1. *Cotton.* For several years after the occupation of Tonkin at the end of the last century, that country imported a good deal less fabric than yarn. The latter did not come from France but from foreign countries and particularly from Bombay. They were used for native family industries which were satisfied with extremely low profits. Even the increase in the duty on yarns was only of very slight assistance to French cotton goods imports. "In fact, the duty would have had to be almost prohibitive in order to compensate for the difference in price between the materials made in France and those made in Indo-China by the consumers themselves."²¹

While still protecting the importation of fabrics from the mother country, it was therefore decided to establish spinning mills in Tonkin which could take advantage of both the very low price of the local raw material and the abundant supply of cheap labor. Several large French industrialists put up the funds with which the first mill was built at Hanoi in 1894. Two other mills were later established at Haiphong and Nam Dinh. In 1913 the three enterprises were amalgamated into the *Société Cotonnaire de l'Indochine*.²²

The mill at Hanoi has closed down. The one at Nam Dinh, in the center of a densely populated region, has had a steady growth and is the most important today. From spinning, it is but a step to weaving. The *Société* has 30,000 spindles at Haiphong and 54,000 at Nam Dinh; in addition there are 1,300 looms at Nam Dinh. The steam boilers and power plants use about 40 tons of coal a day; the Nam Dinh mill has its own foundry, a landing stage on the canal and a fleet of launches and barges; the plant also includes bleaching and dyeing works. In 1933 the company employed about 5,000 workers, of whom 4,000 were at Nam Dinh; in 1938 there were probably some 10,000 employees, working irregularly.

The *Cotonnaire* mill at Nam Dinh employs the greatest number of workers found in any single factory in Indo-China. An official statement on November 20, 1933, gives some very

²¹ De Lanessan, *La colonisation française . . .*, *op. cit.*, p. 275.

²² About 1910 the three mills had 62,000 spindles and employed 1,800 workers; they imported about 3,000 tons of cotton from British India. (R. Ferry, *Le Régime douanier*, *op. cit.*, p. 207.)

interesting data on working conditions.²³ Girls and boys between the ages of 14 and 18 make up about 25 per cent of the labor force, and women and children account for another 50 per cent, the proportion being even higher in spinning than in weaving. "The labor supply in the spinning mills of Nam Dinh and Haiphong is a family labor supply, uniform and stable; spinners and weavers almost always belong to one family and each child, from the time he is old enough, starts to work in the mill thus increasing the wage of the family group and adding his contribution to the well-being of the household." The work is divided into shifts, since it continues throughout the night, and thus the average yield of each machine increases with the number of workers. Night work is often preferred by the Annamites since the factories are cooler in summer and warmer in winter during those hours; it is also less carefully supervised by the European overseers, so that on the whole it is lighter than the day work; the workers arrange among themselves to take turns at the job and those who are not working use the interval between shifts "to lie down between the looms and take a nap." Another company has a mill at Haiphong which manufactures sewing thread and cotton yarn and employs 430 workers.

Today local resources count very little in supplying raw materials to the spinning mills. All over Indo-China cotton is a product of family cultivation, being grown on tiny plots.²⁴ Almost all the raw cotton used in the Tonkin mills comes from abroad, from India, America or China.

The 1937 yarn production of the Nam Dinh and Haiphong mills was estimated at more than 8,000 tons. These factories furnished most of the yarn used by native weavers of the countryside and by those grouped together in small workshops in the cities, particularly at Cholon. In addition, in 1937 the Nam Dinh looms produced 702,000 blankets and 2,212 tons of miscellaneous cotton fabric, including towels which are widely used in the most humble homes for many purposes besides those usually associated with the name.

2. *Silk.* While the cultivation of cotton has by no means

²³ Cited by M. Goudal, *Problemes de travail en Indochine, op. cit.*, p. 328.

²⁴ See above, pp. 232-233.

fulfilled the extravagant hopes entertained for it, the story of the decline of sericulture has been even more disappointing, even though considerable attention was devoted to it.²⁵

The decline of Indo-Chinese sericulture has been striking, especially since 1929. The competition of rayon and the consequent lowering of the price of silk discouraged producers. Moreover, Chinese raw silk, with the added impetus of that country's currency devaluation, has been entering Indo-China in ever increasing quantities. Together with the village craftsman's product it largely supplies the French factories which are chiefly devoted to weaving.

There are only two silk factories in Indo-China. The one at Nam Dinh has had to close down most of its spinning mills; it employs about 800 workers. Employing more than 1,200, the other, strangely enough, is not located in a city. It was built at the end of the last century in the open country at Phu Phong on the road from Qui Nhon to Kontum, in the Binh Dinh province. The site was selected by the founder because it was the center of extensive sericultural activity, which however has since diminished. Nevertheless, the enterprise has served to stimulate attempts to revive and improve bombyx raising. It provides work for a great many spinners scattered throughout the neighboring villages and even at a great distance from Phu Phong, as for example around Ky Lam, west of Faifo in Quang Nam. Indo-Chinese raw silk makes an irregular thread which is woven into light, rough-textured materials, or tussores. But the native silk production is quite inadequate for Indo-China's needs. Most of the raw silk used by the Nam Dinh and Phu Phong factories comes from Chinese spinning mills at Canton and especially at Shanghai, which furnishes a more uniform and better quality product. These silks are made into a wide variety of fabrics some of which contain an admixture of rayon; a good many of these fabrics are sold in Indo-China to natives or to the Europeans who follow closely the whims of Paris fashion and demand a great variety of constantly changing styles. The 1937 production of the Phu Phong mill was estimated at 517,000 meters.

²⁵ See above, p. 233.

The weaving of rugs with hand-made knots should also be included among textiles. They are made in a factory at Haiphong which uses imported wool and employs 600 workers.

Still more recently, coconut fibre sparterie works were started at Tonkin. This industry has about a thousand employees and its chief products are mats, exported to France under a quota system.

Rubber and leather. Stemming from the European agricultural development in Indo-China, the rubber industry consists of only two small factories, one at Saigon and the other established in 1938 at Hanoi, employing about 150 workers in the manufacture of miscellaneous products. We shall not discuss again here the workshops set up on the rubber plantations to process latex into sheets for the market.

There are numerous small native shops which make shoes and leather goods in the cities, but there is only one French tannery, established at Hanoi in 1912 which treats cow and buffalo hides and produces all sorts of leather for shoes, saddlery, water-repellent straps, clutch cones and all industrial uses. It employs 100 workers.

Miscellaneous Industries: In so brief a discussion the entire gamut of industries in Indo-China cannot be fully covered, even if we limit ourselves to industries employing more than ten workers and using mechanical equipment.

Mention should, however, be made of the button factories at Hanoi and Haiphong, employing 250 workers and the Haiphong candle-making plant which employs 80 workers.

In the chemical industry group there are two oxygen-producing plants, one at Saigon and one at Haiphong. In Tonkin there are some small paint and varnish plants, and four factories employing 1,250 workers which make explosives and assorted fireworks, their principal product being the fire crackers which play an important role in the social and religious life of the Annamites and Chinese.

Finally, the country's economic development is indicated by the steady increase in electric power production (which employs 3,000 workers)²⁶ and in the expansion of machine shops for the construction and maintenance of transport

²⁶ See below, pp. 285-286.

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facilities and mechanical equipment. The railways, for instance, have large assembly and repair shops, the main one being at Vinh in north Annam. The Saigon arsenal is a government plant which has played a very useful role in Cochin China in developing skilled native labor. Haiphong has its shipyards which build barges, river launches and small cargo boats and have also engaged in the production of special equipment for plantations and mines.

INDUSTRIAL POTENTIALITIES AND PLANNING

For some time industrialization of overseas territories has been a much talked about colonial problem in France as well as in other countries.²⁷ Until recently the question had always been broached cautiously and uncomfortably. Now the tendency is to consider it in all its ramifications. Should processing industries be encouraged in the colonies? And if so, how can the legitimate interests of the mother country be safeguarded? What would be the effects of such development on native society? Would imperial ties be strengthened thereby or, on the contrary, would they be weakened? These questions are being ardently discussed today and rightly so. Undoubtedly this new trend is the result of the general change of attitude on colonial questions caused by the war and by post-war conditions. It is scarcely necessary to add that similar problems do not develop at once in all the colonies and that the same solutions cannot be applied everywhere. Of all France's colonies, Indo-China seems to be the one best suited, on the whole, to industrialization.

The colony's potentialities will be discussed first and then what seem to the author to be the most desirable methods of developing them.

Potentialities

The resources necessary for the industrial development of any country may be simply stated as motive power, raw materials and labor supply, together with potential markets. We shall discuss all these topics, leaving the subject of labor for the last.

²⁷ See especially the *Comptes rendus du Congrès International de Géographie d'Amsterdam*, 1938, *op. cit.*, Vol. II, pp. 595-613.

The wealth of motive power obtainable from the coal supplies and water power of Indo-China is the least debatable item. The Quang Yen coal basin, to mention only one, could produce for many years to come at a rate far exceeding today's; more than two-thirds of the coal mined now is exported.²⁸ It is true that for many uses this coal must be mixed with bituminous coal; but even admitting the possibility that the local bituminous coal veins will be exhausted fairly soon, which is by no means certain, it seems likely that this type of fuel could always be imported from neighboring countries without difficulty.

The quest for oil has given no conclusive results as yet but someday the forests may well become an abundant and regular source of wood gas. Such forest utilization, however, must be postponed until lumbering has been put upon a systematic sustained yield basis.

Indo-China has large reserves of hydroelectric power, although no complete survey has yet been made and their utilization is still microscopically small. As a matter of fact the technical considerations involved present very difficult problems; the rivers are very irregular in volume; the large consumers of electricity are located on the plains, involving the construction of high tension transmission lines which would encounter unusual difficulties because of the climate. Insulation would have to be much heavier than it is in Europe and, at least in those parts of the country subject to typhoons such as Tonkin and Annam, all structures would have to be able to resist much higher wind velocities.²⁹ Also, of a total potential of more than 88,000 kilowatts, only a very insignificant fraction, about 2,000 kilowatts, was produced by hydroelectric plants in 1936. Almost all the electricity comes from power plants using second grade Tonkin anthracite, the

²⁸ The local consumption of crude and composite coal (minus consumption within the mines) increased from 394,000 tons in 1934 to 628,000 tons in 1937. Approximately one-third is used for transport purposes (river and marine navigation and railways) and the remainder for industry in the strict sense of the word, part of this being first transformed into electricity; home consumption for heating and cooking is negligible.

²⁹ P. Drouin, "L'électrification du Tonkin," in *Bulletin économique de l'Indochine*, 1938, p. 483.

type called Hon Gay nut coal. Crude oil motors are more economical in regions far removed from ports and not provided with rail connection to Tonkin, such as Cambodia and Laos.

Although at present most of the electric power is generated from Tonkin coal or imported fuel oil, its production could readily be expanded to meet increasing needs. An examination of the records shows that, in almost every case, plants could increase their present production considerably without installing new equipment.

There is a clear tendency toward monopolistic control in the electrical industry. With the exception of plants operated by industrial and mining enterprises for their own needs, almost all of which are in Tonkin, most of the electric power is furnished by four allied companies. One of these is in Tonkin and three serve Cochin China and Cambodia.

A few urban centers were already using electric lighting at the end of the last century; Haiphong was the first city to do so, in 1892, and Hanoi was next. "The first power lines for the public distribution of electricity ran from Hanoi to Ha Dong" in 1923.³⁰ The distribution of electric power has been greatly extended since the World War. Under agreements negotiated with the government, the power companies have almost finished building the long distance transmission lines for the electrification of the Tonkin and Cochin China deltas. Electricity offers the European population infinite possibilities of increased comfort through various domestic appliances for ventilation, refrigeration, etc. The native and especially the Chinese merchants in the larger cities also find it invaluable. Here, however, we should stress particularly the fact that electrification can and should be a means of rural metamorphosis as well. In the first place, the benefits of irrigation could be greatly extended by the use of electric pumps and second, electricity would be enormously helpful in developing village industries.

From our review of the principal industries we have seen which of her raw materials Indo-China now processes at home. To name those which she could manufacture would be to

³⁰ P. Drouin, *article cited*, p. 432.

enumerate all the country's products. From the technical point of view, there is probably no reason why she could not completely manufacture certain materials which she now exports as raw or semi-manufactured products. It is true that little processing is needed for the two principal export commodities, rice, most of which is milled in the colony before shipping, and corn. But the manufacture of fish products could be developed into a more diversified and remunerative industry. Innumerable products could be made from the wood of the country. At first glance the observer is astonished by the fact that Indo-China, with supplies of minerals and coal, does not manufacture tin and zinc; that instead of exporting many millions of tons of copra, she does not make it into oil and soap; that she does not use her own supplies of lacquer, sticklac and hides for various industries. From an *admittedly brief study of the country*, it would also appear that a rubber processing industry could also be established in Cochin China.

In addition, there is said to be great wealth lying dormant in Indo-China's soil, useless unless industries are developed which could utilize it; for example, iron which might be employed in the development of siderurgy and, later, of other *metallurgy is said to exist in large beds of high content ore* in the Thai Nguyen area. Moreover, one of the fastest-growing modern industries is cotton textile manufacturing and this industry depends almost entirely upon imported raw materials. Indo-China has demonstrated that, like Japan and the western world, she can successfully manufacture not only the products of her own soil but those purchased abroad. Thus, we see that the colony's industrial potentialities are infinite.

However, manufacturing alone is not enough; the finished products must find markets. The last few years were a cruel proof of this.

Where will be the outlets for a greatly increased industrial development in Indo-China? Within Indo-China itself? In a *recent book, full of new ideas and optimism*, M. Paul Bernard says: "A minimum program, assuring proper diet, adequate housing and two cotton suits a year to 23 million Annamites

would require an unimaginable upswing of local industry."³¹ The author agrees wholeheartedly with this statement, but its terms should be defined. What constitutes a proper diet? Certainly it should mean larger rice rations daily and the consumption of greater quantities of nitrogen-containing foods, such as meat, fish and their products. As for adequate housing, how is that to be defined? The lodging of the well-off Annamite peasant is adapted to local conditions and the geographical setting; there is no reason to change either the style or the materials with which it is constructed. It is well-being itself which must be distributed throughout the rural populations. Undoubtedly such public works as village sanitation, pure water supplies and electrification are highly desirable. But it should be emphasized that such progress will not result from industrial development alone but will also require basic changes in agricultural methods and in the peasant's psychology as well as a liberal and extensive farm credit system.

As for the 46 million cotton suits to be worn out each year, on one hand, the natives must be given the means to acquire them and, on the other, the mother country must be induced to forfeit her interest in supplying them. This immediately supposes a complete remolding of current conceptions about colonies, again reaffirmed as recently as the Imperial Conference of 1934-35. In 1937 Indo-China imported 206 million francs' worth of cotton goods, most of which came from France. The colony could certainly produce these itself. Once customs' regulations were modified in favor of Indo-Chinese industries, the latter might even be able to produce for export. Then the profits of such an export trade would bring the natives an income they now lack, increase their purchasing power and raise their standard of living.

There is also the possibility of foreign markets for local industries. These might be found either within the limits of the French Empire or in other countries. In the first case, the mother country would have to be persuaded to accept the

³¹ Paul Bernard, *Nouveaux aspects du problème économique indochinois*, Paris, 1937; p. 96. Mention should be made of an error, although it is unimportant in this connection: there are scarcely 17 million Annamites.

competition of Indo-Chinese goods not only on the Indo-Chinese market but in France itself and in the other imperial territories. French industries rebelled quite recently against timid attempts in this direction, such as importing Indo-Chinese coco fibre mats into the mother country, which they opposed vigorously, at the same time pointing out the dangers that would beset French factories if a few thousand yards of Tonkinese cotton cloth or a few tons of soap or sugar were purchased by Madagascar.

Some advocates of rapid industrialization paint glittering pictures of neighboring Far Eastern markets, particularly those of southern and central China. Here an enormous population lives on the very edge of want. Indo-China's rice plantations help to feed it, but the colony could also supply other urgent needs which will surely arise and could participate in China's land improvement, development of railways and roads, the building of ports, etc. The same plan sounded very promising between 1880 and 1900, when swarming China with its immense possibilities for production and consumption was eyed with interest, once Indo-China had been taken over. The answer is clear enough today. China has already begun to supply some of her own needs and, besides that country's wholly understandable desire for strong nationalism tending toward autocracy, Indo-Chinese industry must face competition from other countries, and not only from the Western nations, but particularly from Japan.

Finally, Indo-China's industrial progress obviously implies the employment of peasant workers, particularly those of Annamite origin. We shall not review here the characteristics of this native labor supply, its qualities and faults, tractability, competence and pitifully low standard of living, nor its physical weaknesses, frequent lack of professional scruples and its low output in comparison with that of European labor or of Oriental workers in more temperate climates. There is no doubt that in Indo-China many industries would find a sufficient labor supply not only for their initial needs but for their continued expansion. But the important question, from our point of view, is how this labor would be used.

Plans for Industrialization

Unequivocal hostility to the development of industry in Indo-China is an untenable position. Surely the encouragement of industrialization would aid the healthy growth of this richly endowed colony within the framework of the French Empire. Obviously, this growth should not be left to the hazards of individual initiative and/or to the control of mere circumstances; it should be thoughtfully planned. Instead of relying on the impetus of the moment, careful and complete investigations should be made to determine each industry's possibilities for activity and for success. Moreover, development should be regulated with a view not only to the material needs of the native population but also to the economic and social organization of the native peoples.

This does not mean that the industrialization program cannot profit from experiences in other countries, the methods they have adopted and their successes and failures. On the contrary, such study would be of the greatest value. Moreover, it should be carried far and should not draw categorical conclusions from a few fragmentary facts; it should not attempt comparisons where conditions are dissimilar; it should clearly note the individual, complex problems of each region. Conclusions drawn from the industrial development of the great Western nations are hardly likely to apply to Indo-China. Undoubtedly, Japan is more comparable and from its experience Indo-China can learn valuable lessons; however, it must not be overlooked that Japan herself is an imperial country whose recent and present growth is conditioned by war.

Industry should be encouraged in Indo-China, but cautiously and only in certain directions. This, in general, is what M. Paul Bernard recommends when he says that complete "free trade within the empire is the ideal solution toward which we should aim," that "any abrupt breaking off of existing trade channels should be prevented," and that "no agreement should stand in the way of the paramount interests of the consumer, in the broadest sense of the word."³²

³² P. Bernard, *op. cit.*, p. 104.

This is a moderate program to which all informed opinion will easily agree, but it clearly implies a choice, a difficult choice which raises endless discussion.

It would be wise to encourage the development of industries which process Indo-China's raw materials, particularly those which have demonstrated their vigor and stability through the ups and downs of passing years. This is true of most of the industries discussed above. The processing of agricultural products on the spot could be carried further. The making of baskets, various fibre products, embroidery and lace, and wood and horn toys are all well-adapted to the native's traditions and working habits. It would seem to be more advantageous to Indo-China than injurious to the mother country to produce in the colony itself a larger part of the cotton and silk goods necessary for local consumption. The example of the textile industry shows that the French empire does not now, and will not for a long time to come, find within its borders all the raw material it needs; therefore it would be wise for Indo-China to exchange some of her industrial products for these foreign raw materials, within the framework of special trade agreements. In any case, it would be unwise for the mother country to prohibit absolutely the importation of articles manufactured in Indo-China into France or other parts of the Empire. It is unlikely that the trade between France and her big Asiatic colony can increase much, but intercolonial trade within the Empire is far more promising and could include a wide range of transactions in which colonial areas would participate not only with raw commodities but with articles manufactured in their country of origin.

The future of large-scale metallurgy in Indo-China is in doubt, but it would seem wise and urgent to encourage the manufacture within the colony of the tools for developing the utilization of the soil, such as farm tools, and machinery for irrigation, for sorting seeds, and so forth. This machinery cannot be similar to that used in France, for it must be adapted to the soils and people of Indo-China, simple in construction, inexpensive to purchase and operate, and easy to repair. It is impossible to calculate the waste of time and

money incurred in the colonies by using tools made in France for use by French peasants. This resulted not from lack of imagination alone but also from an intense desire for assimilation, into which certain factions hoped to force not only people but climate and soil as well! Contact with the native and intimate knowledge of his needs and capacities are invaluable and essential for the successful conduct of industry in the colony. This is also true with regard to the improvement of traditional crafts. In addition to high precision machinery, like the sewing machine, which will probably be produced in the mother country for a long time to come, there are doubtless many tools which would improve the village craftsman's work and which could be made more cheaply and more conveniently in his own neighborhood.

In fact the rural craftsman's importance cannot be overlooked. We are all too apt to think of the word "industrialization" as meaning huge factories and great swarms of workers in noisy smoke-filled urban centers, crawling with sordid masses of humanity.

While concentrations of machinery and labor have benefited industrial progress by decreasing the cost of production, it is a well-known fact that it has also had serious disadvantages. This has been and often still is considered as the inevitable cost of "progress." The idea has traveled from Western Europe and North America to new lands and from the seats of empire to colonies. Thus modern industry was firmly planted in British India, drawing people from the countryside into great factories in constantly growing cities, like Calcutta and Bombay. In Indo-China, the trend was late in starting and has perhaps been slower, but the demands of large-scale industry have been principally responsible for the growth of population centers like Haiphong, Nam Dinh and Cholon.

To many, it seems inevitable that colonial industrial development, which has been fettered by imperial policy up to the present time, must entail the same result. Especially in monsoon Asia, where urban centers still house but a small portion of the total population, an increase in the number of city dwellers is called highly desirable since it would mean

some relief for the overcrowded countrysides. Moreover, circumstances vary with different industries, some employing rather widely scattered labor while others demand the concentration of their workers.

These statements are not entirely beyond dispute. Rather than alleviating population pressures in rural districts, the development of large urban industries might, on the contrary, aggravate them by hastening the decline of rural industries. We have already seen how many peasants in the Tonkin and Annam deltas still depend on family crafts for most, or at least part, of their income.³³ As craftsmen they are already competing with imported articles. How will they withstand the competition of standardized manufactures from large local factories? Could the new factories themselves employ all those they put out of work? This would assume a much more rapid increase in production and a consequent widening of markets than is at all possible. And so we should see a growing, floating population, forced out of its village milieu by unemployment, a source of great anxiety to colonists and, at the same time, an active factor in the disintegration of native society.

Certainly there is no question of prohibiting the establishment of large factories in Indo-China henceforth, for in some cases this may be essential. But it should be the exception and on the whole industry should expand by utilizing the rural craftsmen as much as possible. In fact, the ease with which rural artisans could be used should be one of the main criteria for determining whether or not a particular industry should be encouraged.

The government of Indo-China is not unaware of the importance of preserving and developing rural industries. Here we should recall the devoted efforts of a French official, C. Crevost, who devoted himself throughout his career to the problems of the Annamite artisan, making exhaustive studies of techniques and possible new markets, introducing improvements and personally educating the natives.³⁴

At present, many rural industries are flourishing. Not only

³³ See above, pp. 246-247.

³⁴ See the posthumous work by C. Crevost, *Conversations sur l'artisanat au Tonkin*, 1938.

do they still supply most of the local wants, but they also produce a number of articles for export. It is quite possible, although there are no statistics available, that the creation of new industries has compensated for the decline of others. In the entire Tonkin delta, the making of mats and reed baskets employs 4,000 workers each,³⁵ and lace making more than 6,000 women; and there are about 50,000 native cotton looms in the region. In Ha Dong province alone, a recent census enumerates 4,400 lace makers as well as an extraordinary variety of other artisans.

The vitality of these small industries is a hopeful sign. Their decline has not proved fatal and they should be assisted by various means, such as export bonuses, technical training, improved equipment and commercial organization. The stage when industry is a purely family affair, though still dominant, can gradually be left behind, and already has been in some cases. For example, mat weaving workshops have been set up at Phat Diêm, and workshops for weaving silk fabrics for raw silk imported from China in Ha Dong province. A French manufacturer who operates silk spinning and weaving mills in Binh Dinh province, central Annam, also specializes in finishing and exporting fabrics which are made on hand looms in the homes of the surrounding countryside. He furnishes these looms to the workers on credit and makes loans in kind of cocoons and yarn.

The textile industry, and silk in particular, may seem to be especially suited to production in scattered workshops. But there are many other types of industry which could also use rural craftsmen who would either completely manufacture certain articles or would leave intricate finishing operations to factories scattered throughout the country wherever peasant labor could be found. Such cooperation would not only help increase agricultural income and the native farmer's profits but would render invaluable aid to rural craftsmen. The administration has already encouraged the organization of craftsmen's cooperatives. These have been criticized because of their artificial structure and because their achievements, at best only temporary and economically unimportant, have

³⁵ F. Gourou, *Les paysans du delta tonkinois*, *op. cit.*, p. 532.

been obtained at great expense. To function well cooperatives must be well-organized, which is not easy. They should not be condemned even for repeatedly unsuccessful efforts, since these are due not only to the natives' ignorance and indifference but also to quite understandable opposition from private interests. Cooperatives cannot develop unaided; it is up to the government to subsidize them heavily for some time to come. Ideally industry should gradually make itself part of the village life, while both improving its techniques and paying more adequate wages. This is not too much to hope for, and it deserves at least sincere and steady support.³⁶

These problems of industrialization have not arisen in *Indo-China alone*. Very helpful lessons might be learned from the economic development of other countries, although comparisons are not easy since conditions vary as much as the views of different observers. In fact the most divergent conclusions can be drawn from the same comparisons, and the field of investigations should be limited. The value of any comparison between countries as different, for example, as the United States and Indo-China, is highly questionable. Obviously the most useful examples are found in monsoon Asia—Japan, British India, the Netherlands Indies and the Philippines.

This is not the place to trace Japan's prodigious industrial development, which has been fully described in several excellent works. It is often said that Japan's rapid economic evolution indicates what industrialization will bring to a densely populated Far Eastern nation. The size and low living standards of the labor supply were the key to this growth, it is added, since they forced Japan to import enormous quantities of fuel and raw materials. Japan, however, has a unique political position in the Far East, for she is herself an imperial country, the heart of an empire. Obviously, this has not been without effect upon her economic expansion and leads to the conclusion that she should be compared with other imperial countries like France or Great Britain, rather than with colonial territories like Indo-China, India or the Dutch East

³⁶ Governor General Brévié has just sent to the Minister of Colonies a bill providing for an Indo-Chinese Mutual Credit Service for handicrafts.

Indies. Besides, it can very easily be shown that Japan's growth was only made possible by her territorial expansion, in short, by aggression, and that even at that price overpopulation in Japan is far from a solution. Japan's program and her methods of achieving it could hardly be advocated in Indo-China.

On the other hand, in the methods and procedures of her industrial development rather than her size, Japan offers Indo-China a very useful lesson. The development of Japan's modern industry has not destroyed family industries; on the contrary, it has utilized them. In this country of large factories,—the Osaka cotton mills, for example—much manufacturing is still carried on in small workshops scattered among the villages and throughout the countryside. This is how raw silk is produced, and cotton and silk ribbons, trimmings and embroidery, paper and bamboo articles, many celluloid and rubber products and all the amazingly variegated toys which, but for tariff barriers, would have flooded the world. In recent years a slight increase in the number of small workshops has even been noted. "According to the findings of the last census, Mr. Takahashi, a Japanese economist, estimates that 53 per cent of Japan's laborers work in establishments employing fewer than five persons and 70 per cent in plants with less than 50 employees. The production of these workshops is by no means anarchic in character; many are associated with large industries, some working under contract for jobbers who furnish the raw material and buy the finished articles; others are directly subsidized by larger companies."³⁷ It is well-known that Japanese industry is controlled by a few large trusts; their activities extend *not only to the financial and commercial field and the construction of enormous factories using efficient, up-to-date methods and the most modern machinery, but to the improvement of rural industries as well.* As a result, the latter are now better organized and equipped than before and, in addition to producing for domestic consumption, participate liberally in export trade.

The economic development of British India is another in-

³⁷E. Dennery, "Problèmes d'Extrême-Orient," in *Annales de Géographie*, 1937, pp. 337-358.

structive example for Indo-China. Great Britain has long recognized that India complements the imperial economy and is one of the mainstays of the mother country's industrial and commercial activity. At the same time, Britain has had to allow modern industry to grow up in the colony. Already this industry is well developed, but conditions here are quite different from those in Japan. India has not only a plentiful labor supply but also abundant raw materials and fuel and it has been possible to build metallurgical plants close to the enormous coal and iron beds which adjoin each other. Textiles, by far the largest industry, have the advantage of a large local cotton and jute production, jute-growing being a quasi-monopoly in India.

However, although Indian industry has grown considerably in the last fifty years and particularly since the war, most of the articles manufactured in India are sold on the domestic market. It will not be long before India will be self-sufficient as regards many of these products. Her spinning and weaving mills, working at capacity, can produce four-fifths of the cotton fabric needed by her population.³⁸ She makes the rails and all the necessary equipment for the operation of her railways, except for locomotives. She imports almost no tires. Her sugar industry, which has recently been booming, supplies almost all the domestic demand.

Thus British India tends to retain all the raw materials necessary for her own needs which she then processes, thus reaping the manufacturing profits herself. She has now carried this program far along the road to completion, although her industrialization is much more modest than Japan's. With certain necessary changes, a similar program could probably be applied with reasonable success in Indo-China.

As far as the forms of industrialization are concerned, another difference between India and Japan should be noted. In India large-scale industry has developed independently of traditional industry, without depending upon it, and more often competing with it. It would be an exaggeration to say that rural industry has disappeared in India, for in fact it continues to provide a livelihood for more people than does

³⁸ Including the production of village looms.

large-scale industry. While the home spinning cotton has vanished, a great deal of weaving is still done in the villages. It is estimated that there are two and a half million hand looms on which some ten million people depend for a living and which produce 25 per cent of all the fabrics consumed in India. In Bihar province, reed and bamboo basket making is still said to be the mainstay of about 150,000 "untouchables."

These small handicrafts have stood up best, or rather least badly, in the face of modern industry. On the whole, rural industry in India has suffered great changes. Craftsmen, struggling unaided and with the greatest difficulty against manufactured products, are often the most poverty-stricken people in the village. Large-scale industry can by no means employ all of them; it recruits its labor supply, which is very unstable, from among unemployed agricultural workers rather than from the craftsmen themselves.

The industrialization of India has not been a satisfactory solution for overpopulation. According to the decennial censuses, conscientiously recorded by the English administration, although the proportion of rural population remained almost unchanged, the proportion of the population living exclusively or mainly by farming increased from 61 per cent in 1891 to 71 per cent in 1931. As the total population grew from 287 to 353 millions in the same period, this means that India's soil has been divided into smaller and smaller parcels. Although large British irrigation projects have produced a considerable increase in the cultivable area, especially in the Punjab, the pace of this expansion henceforth will be much slower. In 1931 it was estimated that five million wage-earners came under the "organized labor" category, that is to say practically all those employed by large companies although, because of the instability of the labor supply, the average daily attendance was only three and a half million. Since mine, plantation, and transport employees are included in this total, there cannot be more than one and a half million in modern manufacturing industries.

Obviously this is only a very small part of the great mass of India's population. Nevertheless, industrial development has had great social consequences. It has been largely respon-

sible for the disorganization of village life, by depriving it of some of its activities, and by increasing the floating population. Indeed, urban factories have seldom secured a stable labor supply; most of the workers, coming without their families and only for a short time, live in hovels where crowding is incredible and living conditions sordid. The Indian Census of 1931, an official publication which would hardly blacken the picture, states that 74 per cent of Bombay's population lives in one-room lodgings with an average of four occupants, about six square feet of space being allotted each.³⁹ Conditions are hardly better at Lucknow or Cawnpore, but Jamshedpur, a city built and run by the Tata Metallurgical Company, and comprising nearly 100,000 inhabitants today, is an exception; here the workers have sanitary houses, filtered water and regular medical care. Elsewhere, although factory conditions are strictly supervised by the government, it is rare for the worker's welfare to be looked after once he leaves the factory doors.

Many observers, both Europeans and native intellectuals who have studied Indian economy, are of the opinion that the decline of village handicrafts or "cottage industries" has been a great misfortune and that *efforts should be made to preserve and revive those which still remain and to reestablish those which have disappeared.*⁴⁰ The revival of rural crafts was one of the main points in Gandhi's program. The well-known leader, spinning "khaddar" on the boat which was taking him to England, went so far as to advocate restoring the closed village economy. To most upper-class Indians today this theory is both obsolete and undesirable. In order to revive rural industry, it should be organized and equipped in correlation with patterns of interregional and foreign trade. To accomplish this, big business cooperation in establishing relations with the rural artisans, as is done in Japan, would be needed. Even more important is the *cooperation of the peasant himself which is beginning to be secured, piecemeal*

³⁹ Census of India, 1931, Vol. I, India, Part I, Report, Delhi, 1933, p. 52.

⁴⁰ Mrs. Vera Anstey, "Industrialization in relation to the level of prosperity in densely populated tropical regions," in *Comptes Rendus du Congrès International de Géographie*, Amsterdam, pp. 535-559. For the opposite view, see Brij Narain, *ibid.*, pp. 567-580.

and with difficulty, despite the poverty and ignorance of most of the people. Long-term support from the government will be indispensable to the success of this endeavor which also requires the staunch collaboration, in deeds rather than in words, of the well-educated Indians.

But what have been the consequences of India's industrialization for the mother country? The volume and value of English imports into India have decreased, and all the more because they have been subjected to duties, frequently quite high ones, imposed at the request of young local industries in need of protection. Cotton imports in particular have decreased tremendously; in 1913 England sold India 3,057 million yards of cotton fabrics, or 43 per cent of her total export; in 1932 this had fallen to 555 million yards, or 24 per cent of the total. This decline has not been offset by increased exports of other articles, machines and luxury products, such as radios, movie films, electric ventilating and refrigerating equipment, etc., which indicates the spread of European tastes and living habits among the wealthy natives. However, foreign trade comparisons are not the whole story. Most of the capital invested in Indian industry is British and consequently most of the profits return to British stockholders.

A study of industry in the Philippines and the Netherlands Indies indicates that, from the industrial point of view, those countries resemble French Indo-China more closely than they do British India or Japan.

Largely developed since 1914, Philippine industries are almost entirely agricultural. They include oil extracting plants, distilleries, refineries and tobacco factories, all of which process products which had been formerly exported as raw materials. But even in the case of commodities deriving from local raw materials, the growth of processing industries entails serious problems when they depend upon export. The development of the Philippine sugar industry and the competition it offered to refineries in the United States and in Cuba is one of the reasons which led the United States to plan complete independence for the Islands. In addition to agricultural industries, straw hats and embroidery, made in workshops set up by American brokers, are exported in consider-

able quantity.⁴¹ While capital and technical skill from the United States have played their role, mention should also be made of the share taken by natives in creating and even in managing new industries.

With the exception of the mines in the Netherlands Indies, modern-type industries are also primarily devoted to processing agricultural products. The industry producing sugar, Java's leading export, has just passed through a severe crisis because of the abrupt decrease of sales to the Far East and particularly to India which now manufactures her own. Besides the factories which make food products, others have been established, some by Westerners and some by Chinese, to manufacture paper from rice and from sugar-cane (at Padalarang near Bandoeng, and at Sourabaya), and to make cement, triplex packing cases, soap, etc. After many hesitations the Netherlands government decided that it could wisely encourage the establishment of new factories, but only within the limits of the colony's needs. A very recent, large development is the Garoet textile factory near Bandoeng, founded by industrialists from Twente in Holland. It uses some yarn from the Low Countries and more from Japan, which it dyes, winds and weaves; like Japanese factories, it has highly efficient equipment. In large, well-lighted buildings, each woman worker supervises the operations of a large number of spindles; the weaving is done mainly by men. In September 1938, the factory employed about 1,500 workers; it chiefly produced printed materials for native sarongs, towels, and blankets made of army cloth, which are in great demand throughout the archipelago.

It would be even more difficult to develop metallurgy in the Netherlands Indies, where coal is rare and iron lacking altogether, than in Indo-China. Semi-manufactured metal for railways, roads and buildings and most of the colony's machinery are always imported from the West. However, much repair work, even highly skilled jobs, can be done in the

⁴¹ Most industry in the Philippines flourishes because of protective tariffs set up by the United States. The Islands will become independent politically in 1946 but, to avoid economic disaster, the Joint Preparatory Committee on Philippine Affairs recommends prolonging the transition period until 1961.

Indies, and automobile assembly plants have been set up there.

Up to now the splendid progress of agriculture, including both food and plantation crops, has sufficed to raise steadily the living standards of a native population which has increased rapidly in the last fifty years. But the Dutch government is concerned about the Javanese population problem and here again industrialization is one of the suggested remedies. It is hoped, however, to safeguard the widely scattered domestic industries which have already suffered considerably from competition with imported articles. Special attention has been given to the family industries of weaving, batik dying, tanning and ceramics. Improved domestic manufacture under European control is already producing a very profitable export trade in pandanus or bamboo fibre hats, many of which go to France. In general, education and co-operatives seem to be the best means of reviving these village industries.

What is to be concluded from this brief examination of industry and its development in French Indo-China and its neighbors? Obviously the problem is complex, a diversity of interests is at stake and a decisive solution is impossible. In addition, plans for reform cannot be based merely on facts, figures and impersonal discussions. Opinions also enter the scene. One school foresees the continuous development of unlimited mechanization and plans to reconcile it with humanity's well-being. Another hopes to save from ruin a culture which it deems worthy of preservation and to assure its peaceful development with French material and moral assistance. Which of these two concepts can better maintain the mother country's influence—an influence as advantageous to the colony as to itself? Actually, the interests of each should be synonymous.

Apparently France must cheerfully accept the prospect of Indo-China's industrial development for it would be futile to command the colony to cease progressing. But this development should not be left to chance. There must be firm yet flexible control, a control in which the producers' associations and the government shall have a share, both in initiation and

in enforcement—a share which cannot, of course, be outlined here. Some enterprises should be encouraged, and others held back, at least temporarily. It seems unwise today to anticipate large export trade in the future, especially for manufactures which do not use local raw materials. But trade arrangements within the French Empire should not overlook the possibility of enriching the colonial economies by the development and increase of processing industries. It is essential to take account of the rural craftsmen, still so numerous on Indo-China's plains and to make sure that the effect on their welfare of every new measure is a determining factor in the political economy. In many cases village workshops could be utilized by modern industry. At a time when much informed opinion is recommending the decentralization of Western industry, it seems unwise to encourage the growth of Far Eastern urban centers.

Does this mean that industrialization of this kind will put an end to overpopulation? Even the most optimistic predictions do not go that far, and neither Japan nor British India, where conditions are far from being completely comparable with each other or with Indo-China, prove that contention. Industrial development cannot be swift and would be dangerous if it were. It requires new capital investment. The revival of rural crafts, involving not only technical training but changes in peasant psychology, is an undertaking demanding time and patience. The necessity of preserving the native society, as well as the desire of maintaining well-established trade channels with the mother country, requires that it be undertaken gradually.⁴²

A maximum of 120,000 workers is employed in modern industry (including mining and manufacturing) at the present time. The average yearly increase in the number of these

⁴² It might also be claimed that since the mother country is importing increasingly large amounts of Indo-China's agricultural products, it is inopportune to restrict suddenly the colony's markets for French industrial products. On the other hand, an industrialization which would enable the colony to supply all her present needs would meet great difficulties, because of the variety of products and the small total production which would be demanded. Repayments of the capital investment would be extremely difficult.

workers since 1890 would thus be about 2,500.⁴³ If, in the future, economic policy should encourage industrial development more than it has in the past and, by improving rural workshops, increase the number of workers who will profit from it, it would still seem difficult to hire 5,000 new workers each year, or twice as many as before. Of course it is true that the wages of these workers would not only benefit them but would also contribute to the support of their families and that the expansion of industrial production would also encourage other activities, particularly trade and transportation. But the yearly population increase is estimated at not less than 80,000 in the Tonkin delta alone. Between 1913 and 1936, according to the censuses taken in those two years, the population of the Indo-Chinese Union as a whole increased by some 315,000.

If well planned, industrialization could help improve the natives' lot. It should not, however, be regarded as the single or the most efficacious remedy for overpopulation. In the writer's view, more can be expected from agricultural progress which in turn depends on the colony's internal prosperity, the continued improvement of irrigation and farming methods, and the effectiveness of the popular credit and cooperative systems.

⁴³In 1905, 85 industrial establishments employing more than 12,000 native workers, excluding miners, were listed. (R. Ferry, *op. cit.*, p. 122.) In the most industrialized region, P. Gourou (*op. cit.*, p. 219) estimates at a maximum of 2,000 the new workers enlisted each year from the Tonkin delta. The instability of the labor supply makes an accurate count difficult.

CHAPTER VIII

FOREIGN TRADE

The study of foreign trade is rightly regarded as a useful indication of a country's economy. Such a study is not easy to carry out, however. Because of their importance to the national budget, customs' statistics are precise and undoubtedly much closer to the truth than production data, but they can be very misleading and comparisons and conclusions must not be drawn too quickly.

The values recorded for customs' purposes are not actual values, but estimates, and they are not revised from year to year. In addition, there should be careful checks of merchandise index prices and their increase or decrease relative to the several monetary units—gold franc, piastre or paper franc. While certainly useful, a comparison of tonnages at various periods does not adequately correct the misleading conclusions drawn from value comparisons. Indeed the proportions of different commodities in the total trade vary every year, particularly among exports. To cite an extreme case, the same importance should not be attached to similar changes in the tonnage of such products as rice and rubber, since their values differ widely.

However, regardless of certain serious criticisms of official statistics, they nevertheless definitely prove the development of foreign trade under French administration. Confining our discussions to the "special" trade (merchandise produced or consumed in the country itself, exclusive of merchandise in transit), its total value has increased from 140 million piastres at the beginning of the century (1899-1903 average) to 197 million in the pre-war period (1909-13 average), and to 260 million for 1933-37. (See Table 18.) It is not surprising that the rise has not been absolutely steady or that the trends reflect world conditions such as the World War (1917 was the depression's lowest point), the feverish and unhealthy in-

TABLE 18

FRENCH INDO-CHINA'S FOREIGN TRADE
(Five year averages, in millions of piastres)

	<i>Exports</i>	<i>Imports</i>	<i>Total</i>
1899-1903	62	78	140
1909-1913	105	92	197
1933-1937	154	106	260

flation following the war, and the collapse which followed in 1930. In 1933 exports had decreased by 55 per cent of their 1929 value (expressed in piastres) and imports by 60 per cent. Recovery began in 1934.¹

Nor should imports and exports be compared without qualification. Their respective value curves have not been

¹ Table 18 is based on data assembled in F. Laurence's article "Étude statistique sur le développement économique de l'Indochine de 1899 à 1923," in *Bulletin économique de l'Indochine*, 1925, pp. 127-161, and in the *Annuaire statistique de l'Indochine*, the first of which covers the 1913-1922 period.

The *Annuaire* include foreign trade statistics both in piastres and in 1914 gold francs. The piastre's value for the period 1899-1912 is given in graph 19, *Atlas statistique de l'Indochine française*, Henry Brenier, Hanoi, 1914. The value of the piastre relative to the gold franc has varied greatly: the average value was 2.40 gold francs from 1899 to 1903; 2.60 in 1913, 4.58 in 1919, 2.32 in 1929; since 1931 (see the chapter on currency), the value of the piastre has been based on the franc. It was worth no more than 1.23 gold francs in 1937. Therefore, graphs based on gold franc values give a very different picture from those based on the piastre. The average value of foreign trade in the period from 1933 to 1937 was actually about 30 million gold francs lower than the 1909-1913 average; in this money of account it barely equals half the 1923-1927 average value. The rising curves in these latter years would be much less steep if they were based on the gold franc instead of the piastre.

But even the gold franc values do not adequately express the development of foreign trade over a long period, because of the changes in the gold prices of various commodities. Statisticians have therefore introduced a new idea—the "volume" of foreign trade—which allows for variations in the value of trade, setting aside variations in price. The *Annuaire Statistique de l'Indochine* give indices of the "volume" of foreign trade, using 1925 as the base year, as follows: for 1928 the export index is 117 and the import index 133; for 1932, 87 and 91, and for 1937, 147 and 137 respectively. The index of values in gold francs, using the same base (1925 equals 100) was 100 for exports and 118 for imports in 1928; in 1932, 35 and 46, and, in 1937, 53 and 45 respectively. This comparison shows that gold prices for Indo-China's total trade have dropped considerably since 1925. But this is general throughout the world. On this subject, see "Indices économiques indochinois," in *Statistique générale de l'Indochine*, Seconde Série, Hanoi, 1937, pp. 9-15.

parallel since 1899, the date when customs' statistics began to be usable. From 1900 to 1906 inclusive, imports were greater than exports, a result of the vigorous development work being carried out in accordance with Governor Doumer's program. The colony was receiving in the form of equipment for industrial development the equivalent of the loans raised in France. After 1906 these imports did not cease but the pace slackened, while exports became predominant as a result of growing production. From then on they remained steadily higher in value than imports except in 1923 (when they were the same) and 1931. The excess of imports in the latter year was again due to the entrance of supplies for the colony's industrialization: *metal construction materials, electrical apparatus, railroad supplies, etc.*—equipment acquired as payments in kind from Germany or by loans. The excess of exports was as high as 242 millions (in 1914 gold francs) in 1919.

Perhaps it should be recalled that the trade balance is not the same as the balance of accounts. The latter includes so-called invisible trade in which exports predominate—for instance, sums paid to the mother country or abroad as interest on government loans or profits of various businesses; funds spent abroad by Europeans (officials, merchants, colonists, etc.) working in the colony; charges for freight and various types of insurance, etc.² While the value of foreign trade has greatly increased in the past *half century*, it is still insignificant relative to the population; in 1937 it represented only about 180 francs per person.³

² See "La balance des comptes de l'Indochine," in *Bulletin économique de l'Indochine*, 1939, pp. 15-21. On the debit side of Indo-China's accounts in 1937 there appeared the following charges, among others: 781 million francs for the transfer of *commercial profits*, 105 million for *interest and amortization on government loans*, 134 million for the repatriation of savings by banks. Movement of funds which do not pass through banks but are handled by Asiatic foreigners (Chinese and Indians) are very difficult to estimate.

³ This figure is based on general trade (including transit trade). It is higher than in China or India (the latter being 95 francs per person) and about the same as in Siam; it is exceeded in the Netherlands Indies (310 francs per person), the Philippines (470 francs) and British Malaya (5,100 francs). It must be borne in mind that these figures are subject to comment and discussion. The extraordinarily high figure for Malaya

In addition, the amount of trade varies drastically in the different states of the Federation. Of course, customs' statistics do not show precise figures for each state for the North Annam trade goes through Haiphong and that of South Annam through Saigon, as does much trade from Cambodia and Laos. Nevertheless, Cochin China certainly takes the lead, both in absolute value and in value per person, being far ahead of Tonkin.⁴ The difference between these two countries is not so great in terms of weight, since coal raises the tonnage of Tonkin's exports.

IMPORT AND EXPORT COMMODITIES

A brief survey of Indo-China's foreign trade is enough to show the nature of its economy which is still that of a very young country. Its exports (mostly raw or semi-manufactured materials) are of low value in proportion to their weight; and its imports (chiefly manufactured articles) are costly and small in volume. In 1937 Indo-China exported 4,358,000 tons of merchandise and imported only 525,000 tons.

Exports

Rice. The outstanding fact about Indo-China's exports is the pre-eminence of rice. Up to 1931 it usually represented more than 65 per cent of the total export value. During the five-year period from 1899 to 1903 the colony exported a yearly average of 809,000 tons of rice and rice products; this increased to a yearly average of 1,331,000 tons between 1919 and 1923 and to a 1,582,000 ton average in 1933-1937.⁵ The proportion of paddy (unrefined rice with the chaff still unremoved) is much less than that of the white or clean rice.

The increased rice exports have been largely due to the

is explained by the enormous transit trade through Singapore. France's share of this trade was only 1,570 francs in 1937.

⁴ Pierre Gourou, *op. cit.*, p. 562. M. Gourou estimated that in 1935 the Tonkin delta peasants' trade with the rest of the world (including other regions of Indo-China) averaged less than 50 francs per person.

⁵ It should be noted that Burma, Siam and Indo-China are the world's three great rice exporters. In recent years Burma has had 50 per cent of the three countries' total exports while Indo-China and Siam provided about 25 per cent each.

canals cut across central and western Cochin China which have made possible the development of vast uncultivated stretches. Local rice consumption, much smaller in Cochin China than in overpopulated Tonkin, leaves a large surplus for export. Tonkin and Cambodia (particularly the Battambang region) export no more than 300,000 to 400,000 tons on an average, and at times Tonkin and Annam even have to import rice for their own use. Rice exports vary greatly from one year to the next, as does the crop, and they depend largely on rainfall. Total exports fell from 1,618,000 tons in 1918 to 967,000 tons in 1919; 1,797,000 tons were exported in 1928, (a record); 959,000 tons in 1931; and 1,547,000 tons in 1937.

Variations in the value of rice exports are even greater than those in quantity. They are intensified not only by changes in world prices according to harvest conditions and markets,—by the laws of supply and demand—but also by exchange fluctuations in the great consumer countries and alterations in monetary and tariff systems.

There is no need to review here⁶ the advantages of measures for increasing and standardizing rice plantation yields—as for example, large and small irrigation systems, plant disease control, use of effective fertilizers, etc. The gravest commercial defect of Indo-China's rice, the principal hindrance to its profitable marketing, which makes it inferior to Siamese and particularly to Burmese rice, is the heterogeneous character of the rice shipments arriving at the factories.

Although the very numerous varieties of rice cultivated in Indo-China are the result of long-term adaptations to very different conditions of climate, soil and irrigation, the rice trade, which is almost entirely in the hands of Chinese, encourages still greater mixtures. There are a few large producers in Cochin China who assemble their tenants' crops and ship them by steam-launch, but they are the exception. Most export rice is bought by Chinese merchants, usually right on the fields, put in sacks and sent by junk to Cholon; rice from different fields is often mixed in the sacks, and there is still further mixing when the paddy, having got wet in shipment, is spread out to dry. Usually the sacks themselves carry no

⁶ See above, p. 219 ff.

indication of origin. In the northern deltas where, instead of going to the proprietors, the merchant buys rice in the market or at the river terminus, mixing of the produce from many small plantations is again very apt to occur. Thus, rice arriving at the factories varies widely in color, size, hardness and adherence of the husk. The machines (huskers, bleachers and polishers), which are adjusted to treat one type of grain, can turn out only a mediocre heterogeneous product containing large amounts of broken and waste rice. Sorting workshops have been built at several plantations, but the process is inadequate and cannot be perfected without adding so many operations that the cost of production would rise too high. A reduction of the number of cultivated varieties, a project undertaken by the Rice Service, should help improve the present highly unsatisfactory commercial methods.

Rice will long continue to play a leading role in the economy of French Indo-China, as it will in the economy of her neighbors and rivals, Siam and Burma. Its supremacy is prob-

TABLE 19
VALUE OF INDO-CHINA'S PRINCIPAL EXPORT CROPS IN PROPORTION
TO TOTAL EXPORT VALUES

	1913-17 average per cent	1932-36 average per cent
Rice and rice products	65.3	49.2
Corn (maize)	2.9	14.0
Rubber	0.8	8.4
Coal	2.1	5.6
Dried fish	3.7	4.7
Pepper	1.0	1.4
Raw hides	1.2	1.1

ably less dangerous, however, than is that of the principal products of other colonial territories—for example, the peanut in Senegal and cocoa on the Gold Coast. Rice is, in fact, both the principal export commodity and the chief native food. It is both possible and desirable that an increase in local consumption should limit the quantity available for export. The Annamite's average daily ration is still inadequate. Therefore it seems desirable for Indo-China's rice exports to decrease gradually in relation to other products. This trend began in

1930 and has been growing since that time. From 1913 to 1917 and also from 1926 to 1930, rice and rice products made up about two-thirds of the exports; this proportion fell to 51 per cent in 1935, 46 per cent in 1936 and 36 per cent in 1937, a poor crop year in Cochin China.

Other Agricultural Products: Next to rice in order of value are corn and rubber, both increasing rapidly in importance. From 1932 to 1937, corn was Indo-China's second export product.⁷ While it had been cultivated by the natives for many years as a secondary food crop, at the beginning of the century it was a negligible item in Indo-China's foreign trade; from 1899 to 1903 exports averaged 170 tons. In 1913, for the first time, exports from the south, via Siagon, exceeded those from Tonkin. The success of this cereal is due to the fact that there is a demand for it in the mother country which has been increasing rapidly since the beginning of the century. Corn exports, most of which are shipped between August and November, already totalled 88,000 tons (1909-1913 average) before the World War; annual exports were extremely irregular, however, depending on the size of the world crop. In France, Indo-Chinese corn encountered the competition of large foreign producers—Roumania, the United States and, especially, Argentina. Following an abrupt fall during the war, corn exports from Indo-China have again increased. In 1932 the policy of protecting colonial products (increased duties on foreign grain followed by quotas) brought about a decided increase; corn prices at Saigon, always lower than those of rice, topped them beginning in 1932. In the latter year exports totalled 298,000 tons, and in 1937 they reached 575,000.⁸ Corn exports have increased even more rapidly than rice. Progress in preparing and treating the product has unfortunately not kept pace with production. The grain was not carefully sorted; packed and shipped before being completely dry, it was often spoiled by mould and weevils. A system of supervision is now being organized. Indo-China's corn is well

⁷ Rubber rose to second place in 1938.

⁸ In 1938 a slight decrease was recorded, Indo-China's exports being only 556,000 tons. More than 400,000 tons were shipped via Saigon, over 100,000 tons via Haiphong and about 30,000 tons from Tourane.

worth attempts to remedy these faults, for in expert opinion its intrinsic quality should enable it to compete with the best South American varieties under more normal conditions than today's.

Rubber's development in Indo-China's trade is similar to that of corn, although it results from quite different causes.⁹ Here we have a plantation crop, wholly initiated and developed by European energy and capital, closely supervised by whites and grown exclusively for export. Rice and corn production, on the other hand, are almost entirely in native hands; they are cultivated on areas increased by irrigation, but by traditional methods. And the crops are produced both for home consumption and for export.

It was not until 1912 that the first rubber plantations in eastern Cochin China began to bear. The amounts exported increased from an annual average of 160 tons in 1909-1913 to 520 tons in 1914-1918. Since 1919 rubber shipments have increased very steadily in size, much more regularly than rice and corn, but their value has fluctuated enormously. As early as 1919 a system of redeemable bounties was instituted by the government to help planters through the crisis caused by the fall in price. The abandonment of the Stevenson plan in 1928 led to a business stagnation which necessitated another direct governmental intervention. Thanks to loans made to the planters, and to the international agreements which raised the commodity's market price while especially favoring Indo-China, growing profits have kept pace with tonnage which increased very rapidly in recent years. Exports, which originate almost entirely in Cochin China and Cambodia, rose from 20,000 tons in 1934 to 45,100 in 1937 and to 59,450 in 1938.

In 1937 rice, corn and rubber represented 78.1 per cent of the total value of Indo-China's exports. Besides these products, only one other accounted for more than 3 per cent—coal, which made up 3.5 per cent.

The other agricultural commodities exported by Indo-China are hardly more than incidental but they are important either because of their present method of production and

⁹ See above, p. 206.

for their future possibilities. Some of them are products of exclusively native agriculture, while others are largely grown on European plantations. For example, copra, with average annual exports of 3,800 tons in the 1899-1903 period and of 9,400 tons in the 1933-37 period, comes chiefly from Annamite coconut plantations in central Cochin China and in smaller quantities from those of central Annam. Since the depression low prices have put a stop to expanding production. Cassava exports, however, are increasing rapidly, 4,000 tons being produced in 1937, mainly on native fields in Annam.

It is also the Annamites who cultivate the lac tree in middle Tonkin; the export of lac, through Japanese or Chinese brokers, has more than tripled since the beginning of the century, increasing from 490 tons in 1899-1903 to 1,580 tons in 1933-1937. Lac should not be confused with sticklac or gum lac, a substance exuded by an insect, the *Tachardia lacca*, whose young swarms are placed on certain shrubs, sometimes growing wild and sometimes cultivated by Tonkin and Laos mountaineers. Exports of sticklac, which averaged 340 tons in 1899-1903, were not even that large in 1933-1937. On the other hand, aniseed cultivation carried on by native and Chinese growers in the provinces of Lang-son and Cao Bang in Upper Tonkin has met an increasing demand (41 tons of starry aniseed and essence of badian were sold in the 1899-1903 period and 450 tons in 1935-1937). Another exclusively native crop is cinnamon which comes largely from trees cultivated by the Annamites and the Moi in the central Annam provinces; cinnamon from wild trees is more highly regarded, but it has become very rare in the Thanh Hoa and Nghê An forests and accounts for very little of Indo-China's sales, which increased from a rate of 250 tons in 1899-1903 to about 1,000 tons in 1933-1937.

In this connection the insignificant part played by natural harvest products in Indo-China's exports might be mentioned. Except for wild cinnamon, there are only amomum and cardamom, usually gathered in the mountains of Cambodia and Lower Laos (400 tons in 1933-1937); *cunau*, a tuber used as a brown dye for cloth and particularly abundant in Upper Tonkin (6,400 tons in 1899-1903, 2,200 tons in 1933-1937);

benzoin and nux vomica strychnine. Latex from rubber-bearing lianas, some 500 tons of which was exported in 1906, has not been harvested at all since the war. While harvesting natural forest products still contributes, in varying degrees according to differences in location and ethnic groups, to food supply and local industries, it has never held an important place in Indo-China's trade since the French occupation, and is valued at only a few million francs.

Corresponding to these secondary native agricultural exports, which seem overwhelmed by the massive rice and corn statistics, are the so-called "colonial" commodities, products of European and Chinese plantations, whose yields are still insignificant compared to hevea rubber. They are tea, coffee and pepper and each has distinctive characteristics, from both the commercial and the agricultural points of view.

Exports of pepper, which is largely Chinese grown, increased at the beginning of the century to a point where they met and even exceeded the mother country's needs; from 2,000 tons in 1899, they had grown to 6,400 tons in 1909. At present, exports stay at about 4,000 tons, of which a very changeable amount is either sent directly abroad, to the United States, England and Germany, or else trans-shipped to those countries from France. Pepper was only tenth in value in the 1937 exports; its market price, being determined by the large producers of Netherlands India and British Malaya, is not as high as those of other commodities.¹⁰

Coffee cultivation has not fulfilled the hopes held for it. Together with other varieties the very popular *arabica* coffee which the plantations produce satisfies domestic needs; little is available for export and this small amount, which is very irregular because of the uncertainties of cultivation, goes almost entirely to France. In 1935, 987 tons were exported and only 532 in 1938.

Customs' statistics do not differentiate between native-grown tea and that produced on European plantations. The latter has recently been increasing.¹¹ While Indo-China's tea is in-

¹⁰ Pepper exports totalled 5,705 tons in 1938.

¹¹ See above, p. 199. About 800 tons of black tea from the Moi plateaus were exported in 1938.

significant compared to world production, it holds a far more important place in French consumption than does Indo-Chinese coffee and it also has a promising market in North Africa. Average annual exports have grown from 160 tons in 1899-1903 to almost 2,000 tons in 1937-38. Great efforts are being made to improve the preparation of the tea, to prevent smuggling and to sort the leaves into different types to suit the tastes of various consumers. Not only plantation-grown tea but an increasingly large proportion of the native Annam teas are treated in French workshops; nevertheless, it is still difficult to sort the native leaves because the shipments are so heterogeneous. Moreover, Indo-China still imports China tea, particularly for the use of the emigrant Chinese and wealthy Annamites (968 tons of imports in 1938).

Among the agricultural commodities available for export, the very small part played by vegetable oils and textile products should be pointed out. Copra, which ranks first among the oil-producing plants of Indo-China, accounts for only 0.5 per cent of the total value of exports. Among oil-bearing plants, the castor oil plant is perhaps the one whose development seems most desirable because of aviation's constantly growing demands. On the other hand, drying oils extracted from the fruits of certain trees already cultivated in Tonkin and North Annam, particularly the candleberry and tung trees, seem sure to find a ready sale.

From the point of view of Indo-China itself or from that of French industry the small textile exports are even more regrettable than the sparse export of vegetable oils. Exports of raw silk fell from 185 tons in 1899 to a mere 8 tons in 1937 and in the same year only 900 tons of cotton were exported. In both cases the amounts are insignificant and far smaller than the imports. By contrast, sales of kapok, largely produced on native plantations, have recently increased, having tripled since 1931; 1,000 tons were exported in 1931 and 3,200 in 1937.

Pasturage and Fishing Products. While the European's influence is seen in new types of agricultural products exported from Indo-China, it has hardly affected pasturage products or fishing, which remain almost entirely in native hands. They

have been seriously studied but this has not yet resulted in practical improvements. The back country plateaus, particularly in Laos, have frequently proved suitable for raising cattle and antelope. But the obstacles in any tropical country to this type of enterprise are well known—there are the ravages of epizootic diseases, the dearth of pasture in the dry season, the natives' carelessness and ingrained habits and primitive agricultural techniques.

Indeed it is the low-lying areas of Cambodia which have furnished almost all the cattle exported by Indo-China since 1909. Around the rice plantations in this district there are greater areas of pasture land than elsewhere. In the summer, when the floods spread over the lowlands, the cattle can be moved to dry pastures in the mountains.

The export of oxen and buffaloes on the hoof for farm work or for slaughter reached its peak in 1910, about 40,000 head—an excessive number, considering the need in the Annamite deltas themselves, and one which certainly could not have been safely maintained for long. The closing of the principal market, the Philippines, reduced exports drastically in 1911; from that time on the Islands' customs' restrictions have been alternately raised and lowered; this resulted in sharp changes in cattle shipments from Phnom Penh, as sales to Singapore and Hongkong did not make up for the lost Philippine market. At Singapore, Cambodian cattle competed with cattle from Bali, which were protected against epizootic disease by their insular habitat and by careful Dutch supervision. From 1924 to 1928 annual cattle exports averaged no more than 12,000; in 1921 it again exceeded 40,000 but dropped to only 15,000 in 1937. Some oxen and buffaloes are shipped overland to Siam and are therefore not included in these statistics.

The value of raw hide exports is less changeable, but dressed hide exports have dwindled to insignificance as local industries progressed (dropping from an average of 629 tons in 1909-13 to 47 in 1936) and also as the use of shoes has become widespread among city natives. The large variations in exports of pigs (34,500 in 1937) and of poultry and eggs, par-

ticularly to Hongkong and Singapore, should also be mentioned.

Fish products long held second place among Indo-China's exports, coming next to rice. They have been pushed down to fifth place by corn, coal and rubber, but they still accounted for more than 5 per cent of the total export value in 1933-1937 (although only 3.7 per cent in 1913-1917), as well as being an important addition to the natives' largely vegetarian diet.

Because of the climate, fresh fish can only be sold locally. Indo-China exports chiefly dried fish, salted or smoked by Chinese fishermen on Along Bay, and by fishermen of the Grand Lake in Cambodia and the Mekong delta. For a long time these fish exports have been very steady, especially as compared to other commodities; from 18,700 tons in 1899-1903, they increased to 28,700 tons in 1909-13, 30,400 tons in 1919-1923 and 31,350 tons in 1937. But prices have varied greatly.

Dried shrimps from southern Indo-China, fish tallow and oil extracted by primitive methods on the banks of the Grand Lake, shark skins and fins, and tortoise shells should also be added to the list of fish products.

The development of salt works and the sale of salt are organized and strictly controlled by the government for profit. Exports of this commodity are extremely irregular, depending on climatic conditions and also on changes in government regulations which vary the degree of support extended to salt production. This explains the big fluctuations in exports: 33,000 tons in 1903, 4 tons in 1910, 2,900 in 1918, 115,900 in 1919, 4,150 in 1924 and 93,300 in 1937.

Mine Products. In contrast to fishing and cattle raising—widely disseminated native activities—mining is almost entirely concentrated in the hands of six French companies. There is nothing in Indo-China to compare with the French West Africa placer gold mines, worked on traditional, primitive lines by thousands of native gangs, each mining on its own; nor is there anything comparable to British Malaya's mining, often in Chinese hands, or to the government-operated enterprises in the Netherlands Indies and Morocco.

The progress of mining production in Indo-China is quite accurately reflected in its exports. It is under the heading of mining products that the greatest relative increase since French intervention is found, not only in tonnage but also in value. The average value of mining exports increased from 1.3 per cent (1899-1903 average) and 3.5 per cent (1913-1917) to approximately 7 per cent of the total 1937 exports.

Anthracite is the most important mine product. Indo-China's domestic consumption has grown more slowly than the production of Tonkin mines. As a result, foreign markets for anthracite had to be found. Both the product's high quality and the strong commercial organization behind it helped to do this. Anthracite exports, scarcely 200,000 tons at the beginning of the century, increased to an annual average of 585,000 tons in 1919-1923 and 1,450,000 tons in 1933-1937; today sixty different grades are sold. Indo-China produces but a small proportion of the coal mined in the Far East; but, with the exception of Manchuria which sells only to Japan, it is the largest exporter.

Of the other mining products—zinc and tin pigs and ores, gold, gems, etc.—none remains in the country except a few thousand tons of phosphates which are crushed on the spot. The export curve thus corresponds exactly to the production curve except for the lag due to building up reserve stocks. Cement should also be added to the mining industry's exports. Beginning in 1905 when 400 tons were shipped, cement exports increased quite regularly until 1920 when they totalled 73,000 tons. From then on they have been much more changeable because of competition from new Far Eastern factories. However, they reached a record of 125,000 tons in 1937.

Manufactured articles. The small part played by manufactured articles in the Indo-China's export trade has already been mentioned in connection with the processing industries. They accounted for only 3.5 per cent of the total export value in 1937.¹²

¹² The term "manufactured articles" means those included in this large category by the customs' statistics, excluding animal and vegetable matter, mineral raw materials, or semi-manufactured minerals, most of which have already been covered. However, the recent development of

The most important manufactured exports are cotton cloth, basket work and sparterie, particularly the Tonkin reed mats which were valued at 6,100,000 francs in 1937, laces and hand embroidery; then come furniture and other wood products, paper and paper articles like books and fans, jewelry, etc. Silk fabrics, such as the local raw silk, are being absorbed more and more by the domestic market.

Imports

Although far less indicative of Indo-China's special characteristics than exports, import statistics confirm the immature and, one might even say, the "colonial" character of the country's economy. Indo-China buys the same articles as many other tropical regions occupied and controlled by Europeans. Manufactured articles are in the lead and accounted for about 62 per cent of the total in 1937, and it is not surprising that fabrics are in first place, accounting for 371 million francs' worth in 1937. Even before the French occupation there was some trade in European fabrics, largely in the hands of Chinese merchants. It has grown a great deal since then, and although it is difficult to measure exactly how much of that growth should be attributed to the decline of local industries and how much to the natives' increasing needs, the latter certainly is the more important factor. First of all are the colored, white, and unbleached cotton fabrics, which alone accounted for 155 million francs' worth of imports in 1932 and 206 million francs' worth in 1937. Here as elsewhere, rayon competes seriously with cotton, the value of real silk and rayon imports increasing from 27 million francs in 1932 to 85 million francs in 1937. Jute fabric imports, mostly in the form of sacks, have increased parallel with agricultural exports—especially rice and corn, and they were valued at 60 million francs in 1937. As for cotton yarn imports, they have decreased from about 4,000 tons a year in 1925-1930 to little more than 1,000 tons a year since 1931, a result of increased activity in the Tonkin spinning mills which utilize foreign raw material and distribute the yarn throughout the colony.

certain industrial exports like cigarettes, matches, bottles, flasks and soap should be mentioned.

Next to fabrics come the miscellaneous and heterogeneous imports classified as metal and metal products, machines and machinery, and iron and steel, totalling 236 million francs in 1937. In particular these include equipment for the country's industrialization and for big public works: bar steel and bar iron, zinc and copper (both forged and rolled), rails and other metal construction parts, locomotives and other machines, parts, tools, and so forth. These items were responsible for the sudden increase in imports at the beginning of the century, when, during 1901-1906, they far exceeded exports, a result of putting the Doumer program into effect and of issuing the first big loans. The heading "machines and machinery" which accounted for barely 2 per cent of the total import value between 1913 and 1930, exceeded 7 per cent between 1927 and 1931, during the feverish years preceding the crash when large amounts of capital were invested in Indo-Chinese enterprises. But these categories were also broadened to cover articles more and more in demand not only by Europeans but by wealthy Indo-Chinese: electrical appliances, radios, sewing machines, phonographs, etc. Imports of automobiles, velocipedes and rubber articles (86 million francs' worth in 1937) are particularly indicative of the development of road communications as well as of the steady rise in the average standard of living of the native population. The same can be said of oils, petroleum and gasoline which are used by many industrial motors and which, among the large import categories, are the group which has developed most rapidly since 1923, amounting to 82 million francs in 1937.

The effects of industrialization can also be seen in the increased purchases of raw cotton (53 million francs in 1937) and of raw silk and silk thread; on the other hand, thanks to the construction of local factories, sugar imports have dropped. The development of plantations—especially rubber plantations—demands increasing quantities of chemical fertilizers (46 million francs in 1937).

The relatively steady increase in imports of paper, books and miscellaneous printed matter (65 million francs in 1937) has kept pace with the spread of education and reading habits among the population. As for the food products imported by

Indo-China—various types of flour, milk, fresh and canned fruits, oils, beverages, etc.,—they are intended for both Europeans and Indo-Chinese. The European's food habits as well as his modes of living have gradually been taken up by the Indo-Chinese. For example, the umbrella enjoys great popularity not only as a protection against rain but as a mark of prestige. Likewise there has been a noticeable increase in imports of various kinds of hats—tropical helmets, felt hats, berets and caps (285,000 in 1934). However only a very small minority of the people can afford European clothes, wines and liqueurs; wheat bread is still regarded as a luxury. Contrasting eating habits, among other things, emphasize the difficulties encountered in trying to alter Indo-Chinese traditions: to take but one example, it is extremely naive to hope that the colony will become a large market for French wines for many years to come, even with clever advertising campaigns.

TRADE RELATIONS

The two geographical units which compose its name take distinct places in the foreign trade of French Indo-China: one which might be called the Far East and rather loosely including India, which is unimportant compared to China, and the other formed by the mother country and her colonies. Indo-China's relations with the *countries of the Far East* are obviously conditioned by their respective geographic positions, by proximity, traditions and similarity of tastes. Relations with the French bloc are primarily imperial in character or, if this word is objectionable, it may be said that they are one aspect of the solidarity between France and her Asiatic colony, created and reinforced by French intervention. It might be worth while to institute or strengthen other ties, but these are still rather frail. A comparison of Indo-China's relations with the Far Eastern and French worlds is essential to the study of Indo-China itself, from both the economic and the cultural point of view; in business transactions as in the exchange of ideas, balance must be maintained and changes made wisely and without haste.

The development of these relations, not a matter to be described year by year, may be summarized as follows. Up to

the World War, the Far East was always ahead of France in Indo-China's total trade. This lead increased during and after the war, and up to 1920, as a result of the shipping scarcity and the dislocation of trade routes, and also because France was using its entire industrial activity for its own defense. After 1920 the Far Eastern share continued to be the larger but decreased somewhat in France's favor. In 1930 the two were roughly equivalent and since then France and her colonies have held the lead.

We shall now consider the matter in greater detail, taking up the respective roles of the two regions in Indo-China's imports and exports. It can be said *without question* that, up to the War, the Far East bought from Indo-China more than it sold. Between 1908 and 1912 these purchases exceeded sales by 46 per cent on an average. It was just the opposite for France which was selling Indo-China more than she bought from the colony, the excess being about 60 per cent during this period. Clearly this was the result of customs regulations founded on the assimilation policy, but which in fact were *much more favorable* to the mother country than to Indo-China. In fact, Indo-China mostly bought manufactured objects which, if they were of foreign origin, paid high duties on entering either Indo-China or France; on the other hand, products exported from Indo-China, particularly raw materials, were subject to relatively low duties in France. In addition, the exceptions made to the general tariff by the mother country, which hoped to obtain favorable treatment in return, were of particular benefit to the European countries with which France traded heavily, while at the same time the countries of the Far East with which Indo-China had the most trade and consequently was most interested in remained subject to the general tariff, under the assimilation policy. Doubtless the results obtained were considered very satisfactory, since in this way the Far East was made to pay for Indo-China's unfavorable balance of trade with the mother country.

It can also be said that Indo-China's economy was well suited to this arrangement. Was it not advantageous that the heavy and bulky raw and semi-manufactured materials, which made up most of the country's exports, should find

their markets in nearby countries? On the other hand manufactured articles, the leading import items, could come from far away since freight and insurance charges were but a relatively small part of their total cost.

The war, during which the values of exports and imports between Indo-China and France were equalized, might be considered as an accidental factor, temporarily dislocating the trade channels which had been considered normal. After 1920, in fact, the balance of trade between Indo-China and the mother country again leaned toward the latter, whereas a reverse development occurred between the Far East's purchases and sales to Indo-China; from 1924 to 1926 purchases exceeded sales by 139 per cent, on the average, the difference between the two more than doubling since before the war. Beginning in 1921, as a matter of fact, tariff regulations were raised again to benefit the mother country's industries which were suffering from competition with countries having depreciated currencies. But Indo-China, which bore the brunt of these decreases, did not find the easy regulations governing the import of her products into France any more of a compensation for these customs' increases than had been the case with earlier tariffs. The law of 1928 was drafted in order to make the assimilation policy more flexible by permitting each colony to levy special tariffs adapted to its particular needs; in addition, it declared complete and reciprocal free trade between France and her colonies henceforth. In fact, however, it opened up a new era of protectionism. Indo-China's special tariffs, somewhat altered by depreciations, are becoming prohibitive as far as many articles formerly supplied by the Far East are concerned.

The depression was to have the unexpected result of both reversing the trade balance and greatly reinforcing the ties between the mother country and Indo-China. As a matter of fact, some of the Far Eastern countries which were counted among Indo-China's best customers, and China in particular, found their buying power lowered and therefore limited their imports as much as possible. To these unavoidable restrictions, the results of poverty, were added the effects of protectionism which was spreading little by little all over the

world. It was the Far Eastern countries, only recently such obliging customers, which imitated the Occident and protected themselves by raising tariffs and refusing to buy more than they could sell. For this reason and also because of its desire to strengthen the empire's unity, France therefore had to absorb more and more of Indo-China's exports; in 1933, 1934 and 1935 the mother country's purchases and sales were almost even, but in 1936 and 1937 the former were very much greater than the latter. At present it is mainly to France that Indo-China sends the surplus of her visible exports which seems essential to the colony's life. The mother country is substituting for the Far Eastern customers which are slipping away. Far Eastern purchases from Indo-China are still greater than sales, but this surplus is very irregular and smaller than it used to be.

In order to reach this balance a whole new program has been undertaken. Monetary reform linking the Indo-Chinese piastre to the franc¹³ has certainly contributed thereto, although it has affected the colony's economy in a variety of ways. Government intervention on behalf of colonial products has been multiplied as evidenced by the protectionist policy which flowered in innumerable statutes modifying customs' duties and export taxes, instituting compensation and premium funds and limiting import quotas. A review of Indo-China's chief customers and buyers will define some of the essential points in this evolution of trade relations.

The Far East

Indo-China has always had more trade with China than with any other Far Eastern country. This is not surprising in view of China's enormous population, huge territory and the important part she has played in the peninsula's history.

China and Hongkong: According to trade statistics, Hongkong was Indo-China's best Far Eastern customer and supplier up to 1936. This English islet is nothing more or less than a central depot for the concentration and redistribution of trade. Thanks to its location on China's southern flank close to the great sea lane leading from Singapore to Japan

¹³ See above, p. 145.

and North America, to its tax-free port and its seemingly unshakable commercial organization, Hongkong has become the heart of an extraordinarily rich trade network. Through Hongkong goes much of Indo-China's trade with Japan, the Philippines, the United States, the Netherlands Indies, Australia and even Europe.

First of all, however, Hongkong is an entrepôt for trade between Indo-China and southern China. China is the ultimate destination of most of Indo-China's trade with the British Isles, which, until a few years ago, was almost always much greater than the colony's direct trade with her Chinese neighbor. But Hongkong has suffered from awakening Chinese nationalism which caused the Canton traders to boycott the port in 1926. It has not recovered its former status and in 1935 and 1936 its trade with Indo-China only slightly exceeded the latter's trade with China proper.¹⁴

Together with France, China is the great market for Indo-China's rice. Each year, both by weight and value, this grain heads the list of commodities which Indo-China sends to Hongkong or directly to China; except in 1926 most of the tonnage went via Hongkong. Some of the rice, shipped as paddy, is processed in Hongkong factories where it is mixed with Siamese or Burmese rice.

Nevertheless, the amount of Indo-Chinese rice exported to Hongkong and China is very variable. It is true that Chinese rice production has never been sufficient to meet the country's needs. Moreover the caprices of climate, droughts and floods make the rice crop very irregular in size. At the same time, Indo-Chinese exports are subject to general market conditions, chiefly determined by the amount of rice available from the other two great sources, Thailand and Burma, and by the demands of the principal consumers—not only China, but India and many other Pacific countries. Rice consumption is very elastic in these regions many of which grow other cereals which, though usually less popular, nevertheless have a place in the domestic food supply, varying from year to year. Moreover

¹⁴ However, the trade between Indo-China and Hongkong revived in 1937, the Crown Colony benefiting just as did other ports in southern China from the Sino-Japanese war.

because of overpopulation a great many people live on the edge of poverty and their capacity to restrict consumption is extraordinary. This is particularly true in China, where rice imports depend less on the peoples' real needs than on the demand which, in turn, is determined by purchasing power. The latter is extremely variable, depending on climatic hazards as well as on political conditions and monetary stability. The devaluation of silver, which reduced China's purchasing power 40 per cent, certainly added a great deal to Indo-China's difficulties after 1930 by preventing rice sales at remunerative prices. However, because of inadequate records and statistics in China, it is difficult to determine the relative influence of all these factors on trade fluctuations. Trade has shrunk seriously since the beginning of the depression; average yearly exports in 1933-1937 (530,000 tons) are about two-thirds as large as average exports in 1922-1926 (775,000 tons) and they remain very erratic. For example, exports exceeded 900,000 tons in 1935, the year when silver price increases coincided with bad crops in China, while they were only 290,000 tons in 1936 and 440,000 tons in 1937.

The other food products shipped to Hongkong and China are chiefly dried fish, poultry and eggs, and tea. To Hongkong also goes most of Indo-China's cinnamon bark, which is in part trans-shipped to the United States, her amomums and cardamoms, widely utilized in the Chinese pharmacopoeia, "cunau" tubers and some lac. Coal exports (369,000 tons in 1937) have decreased considerably in proportion to Indo-China's total exports.¹⁵ The export of cement exceeded 40,000 tons in 1937, but it was difficult to determine how this was redistributed from Hongkong.

What does Indo-China receive in exchange? A great variety of products, none of which compared either in quantity or in stability, with the position of rice among the exports. First, there are food and other products, destined for the native use; vermicelli, salted vegetables, tea, tobacco, medicines, religious objects (particularly the small incense sticks called joss sticks) and paper. Among the textiles, which on the whole account for the greatest value of merchandise imported from China,

¹⁵ However, they rose to 545,000 tons again in 1938.

are both silk and cotton fabrics, as well as raw silk and cotton wool for Indo-China's mills. Lastly, we should note the commodities like wheat flour, vegetables and fresh fruits, which are intended for white consumption and merely pass through Hongkong.

The trade briefly discussed above includes merchandise produced or consumed in Indo-China itself. In addition, there is also a certain amount of railway transit trade from Yunnan province through Tonkin and Haiphong to China and Hongkong. In 1937 more than 50,000 tons, valued at 400 million francs, were shipped over this route. Yunnan exports chiefly tin (in pigs or in bulk), a portion of which is refined in a Haiphong mill, as well as some hides, medicinal products and dyestuffs. Cotton yarns and fabrics predominate in the up trade. All this details the variety and size of trade relations between China and Indo-China. It was chiefly in order to adapt these relations to her own best interests that Indo-China demanded customs' independence and special tariffs. Her trade with China has fallen off perceptibly since 1930 and trade restrictions between the two countries have recently been aggravated by protective measures. The central or provincial Chinese governments replied to increased Indo-Chinese tariffs by raising their duties on coal and especially on rice. The Nanking agreement of May 4, 1935, however, lowered the rates which had proved the worst trade barriers.

Japan. The development of trade between Japan and Indo-China is in some ways comparable to that of the colony's trade with China, with certain differences due to the peculiar and somewhat conflicting economies of the two great nations of the Far East. Overpopulated Japan might seem, like China, to be an excellent market for Indo-Chinese rice. But due to the intensive cultivation of its very small rice fields and to rice imports from Korea and Formosa, Japan has managed to be self-sufficient. Moreover, the state closely controls the rice market. It maintains a high market price in order to meet the costs of very intensive cultivation, requiring quantities of chemical fertilizers. To this end, it has set up reserve stocks and limits imports of foreign rice by protective tariffs which are sometimes quasi-prohibitive.

On the other hand, since Japan was resolutely engaged in the industrialization which she believed to be the most effective remedy for overpopulation, she has had to seek buyers in ever increasing numbers for her manufactured products. We shall not discuss here the great increase of Japanese exports or the reasons for the formidable competition which they have given the products of Western industry, even in the most distant markets. In French Indo-China, this competition is felt even more keenly because of the relative proximity of the Japanese archipelago and the consequent low freight costs.

Since at least 1907, Japan has been trying to obtain favorable tariffs for its exports to Indo-China.¹⁶ These demands became more urgent after the World War, which had considerably expanded Japan's productive capacity, and which permitted her to bargain as an ally. Her demands conflicted with French industrial interests and incidentally with the industries and import houses set up in Indo-China by French capital. As early as 1912 the Saigon Chamber of Commerce, when consulted by the Government General, warned of the dangers of granting Japan minimum tariffs. It would encourage the Annamite "to get used to cheap, but inferior products and, following upon brisk trade with Japan, would be the establishment of Japanese concerns in Indo-China."¹⁷ The warning particularly mentioned the importance of the Indo-Chinese market for the spinning mills in Rouen and the Vosges Mountains. After the war, negotiations continued without result. It was emphasized that, in 1919, Japan was able to sell 83 times more cotton fabrics (by weight) than before the war, a situation which was all the more serious since the restitution of Alsace-Lorraine had increased the number of French looms by 30 per cent. The necessity of protecting Indo-Chinese industries themselves was asserted more and more forcefully as increasing amounts of

¹⁶ See the very interesting pamphlet published by the Indo-China Committee: *L'accord commercial entre l'Indochine et le Japon* (1931), which describes the series of measures and conferences which ended in the 1932 treaty of commerce, and which lists the various industries in France and Indo-China which found themselves menaced by Japanese competition. See also: R. Lévy, *Les conséquences du développement économique du Japon pour l'Empire français*, Paris, 1937.

¹⁷ *L'accord commercial*, *op. cit.*, p. 7.

capital were invested in the colony. In 1925 a Japanese mission went to Indo-China.

Finally, a commercial treaty was drawn up in 1932 under which both countries made reciprocal concessions. These are jealously restricted. As a matter of fact, trade between Indo-China and Japan has declined. Before the signing of the treaty, Indo-China had a very favorable balance which was a valuable argument for the Japanese claims. From 1913 to 1932 Indo-China's sales to Japan were almost five times the value of her purchases; from 1933 to 1937 sales were just slightly more than double purchases.

Primarily this recession was due to shrinking rice exports to Japan. While these have never taken more than an unimportant and variable share of Indo-China's available supply (averaging 109,000 tons annually in 1913-1928, with a minimum of 0 in 1915 and 1916 and a maximum of 355,000 in 1918), they dropped to an average of 36 tons in 1929-1932 and to barely two in 1933-1937.

The principal commodities which Indo-China now furnishes to Japan, as a result of reductions or exemption of duties, are coal, rubber and lac—all products necessary to Japan's industry. Japan has become the best customer of the Tonkin anthracite mines, its purchases growing from 28 per cent of the exports in 1920-1924 to 50 per cent in 1933-1937, exclusive of the rather small tonnage shipped via Hongkong. In 1937 Indo-China sold 5,000 tons of rubber directly to Japan which was also the chief buyer of the colony's lac oil. The only other exports which might be mentioned are sea salt, fine sand which is shipped in small boats from the Annam shores to Japanese glass works, and a few thousand tons of iron, chrome and manganese ores.

As for the Japanese goods which can get over Indo-China's tariff wall, they are first of all manufactured articles: chiefly real silk fabrics, wooden articles and chinawares. Tea leads among the food products, followed by potatoes and fresh vegetables, seaweeds and mushrooms. Japan is also Indo-China's principal foreign source of cannel coal and coal tar, needed for the manufacture of agglomerates like bitumens and asphalts for road building.

The Netherlands Indies. Indo-China's trade with the Netherlands Indies has also declined, although not so much as its trade with Japan. Java's huge population and the large-scale cultivation of export crops in both Java and Sumatra has meant that those islands could no longer feed the natives or produce sufficient quantities of the mainstays, rice and fish, which also form the Chinese diet. From 1913 to 1931, Indo-China exported direct to the Netherlands Indies amounts of rice varying from 30,000 tons in 1923 to 377,000 tons in 1931 and averaging 136,000 tons, a greater quantity than that taken by Japan in the same period.

But the Indies too were seriously hit by the depression and the government had to encourage a return to subsistence farming and particularly to rice-growing by developing irrigation works and even by prohibiting foreign rice imports at certain times. Accordingly, Indo-China's exports to the Indies fell to an annual average of 43,000 tons in 1933-1937.

Direct imports from the Indies into Indo-China consist mainly of mineral products—a small quantity of cannel coal and chiefly hydrocarbides of which the Netherlands Indies is Indo-China's principal supplier. The latter are the principal reasons for the very unfavorable character of Indo-China's balance of trade with the Netherlands Indies since 1932. There is no way of estimating the amount of goods shipped from one country to the other via Singapore.

Singapore. Like Hongkong, Singapore is a great port for transit, warehousing and distribution, which makes it difficult, if not impossible, to appraise accurately Indo-China's trade with her customers and suppliers. At this key point cross trade routes between the Netherlands Indies, Malaysia and India and, to a lesser degree, Western Europe and even America.

Indo-China has always shipped to Singapore, as to most of its Far Eastern customers, more than Singapore has sent back. Little Indo-Chinese rice is unloaded in the Straits port (35,000 ton average in 1933-1937) but some rubber is. Since 1928, however, rubber diminished somewhat in relation to total production, since many shipments today go straight from the Saigon merchants to the consumers in Europe and the Pacific—Japan

and the United States leading the latter group. The Chinese middlemen in Singapore continue to be the largest purchasers of Indo-Chinese dried fish. Malayan foundries refine almost all the Tonkin and Laos tin output. And finally, Singapore is a rather changeable market for Cambodian cattle, both pork and beef, and for cement from Haiphong.

Exports from Singapore to Indo-China consist largely of jute sacks (valued at 32 million francs in 1935) in transit from India. Next in importance are areca nuts used for the native's traditional quid of which local production is inadequate. These are trans-shipped from British Malaya and the Netherlands Indies. Finally, through Singapore, just as through Hongkong, come those foreign food products for European consumption, butter, coffee and fresh fruits and vegetables—grown in Europe, the Netherlands Indies, Australia and even South Africa.

British India. The trade of India (and Ceylon) with Indo-China remains fairly small and quite erratic, even taking into consideration the quantities shipped through Singapore which cannot be accurately estimated. The French colony is almost wholly dependent on Bengal for jute bags which she imports in increasing quantities in exchange for her rice shipments, but these are included, either wholly or in part, under Singapore in the customs' records. India also furnishes Indo-China with a certain amount of ginned cotton (about a third of the French colony's total imports).

Burmese rice continues to hold first place in the Indian market; in some years Cochin Chinese exports dropped to a few thousand tons, and have seldom exceeded 100,000 (the 1933-1937 average being 70,000). The teak which is shipped to India from Saigon comes down the Mekong from Thailand where it grows.

The Philippines. Before the war the balance of trade between Indo-China and the Philippines was always very favorable to the French colony. From 1908 to 1912, the Philippines were Indo-China's best customer in the Far East, after Hongkong and China and about equal to Singapore. Between 1909 and 1913 their share in Indo-China's total exports was 8.4

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per cent, but this dropped to 2.7 per cent in 1924-1928 and to less than 1 per cent in 1933-1937.

The Philippine food and plantation crops expanded so rapidly that there was a great shortage of draft and beef cattle and the Islands turned first to Indo-China to meet this need. More than 40,000 head of buffaloes and oxen were exported from Cambodia, Annam and Laos in 1910, to the Philippines, thus supplying more than 70 per cent of the archipelago's needs. But after 1911, shipments became very erratic; for quite long periods restrictive measures suspended imports; at other times they were strictly limited in order to encourage local breeding. On the other hand, the expansion of Philippine rice plantations and the competition of other growers have cut into Indo-Chinese rice exports to the Islands: from a 73,000 ton average in 1913-1917, they fell very low after 1930 (13,000 tons in 1933-1937). Offsetting this, Tonkin anthracite began to make its appearance in the Philippines in 1935.

The unbalanced trade relations between the two colonies, at first accepted by the Philippines, has certainly helped to weaken their economic ties. Indo-China has never been more than a limited market for Philippine products, importing chiefly leaf tobacco and cigars.

France and the French Colonies

Table 20, which omits detailed yearly variations, shows how much the economic ties between Indo-China and the French

TABLE 20
THE POSITION OF FRANCE AND HER COLONIES IN INDO-CHINA'S
FOREIGN TRADE

	1917-20 per cent	1927-30 per cent	1931-37 per cent	1938 per cent
Exports from Indo-China	19.6	20.9	48.1	53.0
Imports to Indo-China	29.6	43.2	57.1	57.1

bloc have been strengthened. The Empire's relative share in the colony's exports more than doubled between 1911-1920 and 1931-1937, and its share in the imports nearly doubled.

Two facts stand out: (1) imperial trade has expanded; and

(2) increase in exports and imports has not been parallel either in extent or in tempo.

Between 1921 and 1930, the boom period which saw inflation all over the world, France had the largest favorable trade balance. After 1931 and during the depression, the favorable margin was sharply cut into by the relative increase of Indo-Chinese exports which previously had scarcely grown between one ten-year period and the next (1911-1920 to 1921-1930). Table 20 shows the progressive adjustment being worked out between the economies of Indo-China and the mother country. Doubtless justified by the complementary requirements of the two countries and by the very fact of colonization, it has only been realized by more and more effective protectionist and development policies. For a long time these policies worked in favor of the mother country and it was not until 1931 that Indo-Chinese products began to benefit from them to any great extent.

French exports to the Asiatic colony have been characteristic of an imperial country which is supplying and outfitting a still largely agricultural and overpopulated territory, just emerging from almost complete isolation, in order to develop it into a modern productive economy. Therefore, at the top of the list of French exports are the products of the leading Western industries, those whose growth best illustrates the progress of capitalism and which employ the greatest number of workers—the clothing and tool making industries.

It would be intensely interesting, although very difficult, to describe the influence of the great French textile industry on the nation's colonial policy and its parallels in the British Empire. To clothe a people who have hardly a rag is a task which, whatever the climate, seems to offer unlimited possibilities to the mother country's industries. At the time of French intervention, the great majority of the Indo-Chinese were no longer either naked or half naked. But their clothing needs were obviously very elastic and they still are. Yard goods have been the most profitable of import commodities. In 1914 M. Brenier¹⁸ noted the progress made since the beginning of the century. Imports of foreign cotton fabrics had

¹⁸ *Essai d'Atlas statistique de l'Indochine française*, Hanoi, 1914, p. 232.

become unimportant while the average yearly imports of dyed cottons from France in 1908-1912 were 99 per cent greater by weight than the 1898-1902 yearly average; white fabric imports increased 83 per cent, and unbleached fabrics, 20 per cent.

Large textile factories have been established at Tonkin and tens of thousands of looms are still operated throughout the countryside. French cotton fabric imports have maintained an average of 7,000 tons in recent years, just as they did in 1908-1912; in 1937 they were valued at 183 million francs. The preponderance of French imports over those from other countries is still overwhelming. In addition to cotton fabrics are the rayon imports which are beginning to replace the former and were valued at 69 million francs in 1937, rayon and silk mixtures (6 million francs), wool fabrics (12 million francs), linen, hemp and jute materials (5 million francs), cotton and wool yarns (11 million francs), and clothing and linen (7 million francs). Before the World War imports of French real silk fabrics were exceeded by those from China while today it is Japan which has taken the lead; as for cotton yarns, France supplies less than half the amount needed by Indo-China's textile industries which are depending more and more upon the Tonkin spinning mills.

French metallurgy also finds Indo-China a profitable market, supplying the majority of the metal products imported by the colony. These are chiefly iron and steel (63 million francs in 1937), machines and machinery (50 million francs), miscellaneous metal goods (64 million francs), automobiles, velocipedes, motorcycles and parts, and railway cars (57 million francs altogether).

Textile and metal products account for about two-thirds of the value of imports from France. Manufactured articles come next in importance and include rubber products (especially tires), paper, toys, tanned hides, glass and chinaware, perfumes and soap, medicines, paints and dyes, fertilizers and chemical products. Food products, making up one-fifth of the total, are imported almost entirely for the European population; France is the principal source of imported cheese and butter, wines, spirits and mineral waters.

The recent very remarkable development of Indo-China's export trade to the mother country could result only from widening markets for the colony's agricultural products. Rice, the leading native cereal, was the first to profit therefrom. The amounts sent to the mother country averaged 230,000 tons from 1909 to 1913, enough to fill most of France's needs, but only 26 per cent of Indo-China's rice exports. After a steep decline in 1918-1920, exports rose again between 1925-1929 but did not exceed the actual or relative values of the pre-war exports. The last five-year period, however, reveals a substantial increase; in 1933-1937 France imported an average of 647,000 tons of Indo-Chinese rice, 41 per cent of the colony's total production.

This was the result of extensive advertising campaigns and of tariff regulations. Because of the difficulties of selling to Far Eastern countries after 1931, the Government General of Indo-China entered into a contract with an influential French advertising agency. No means—newspaper articles, lectures and culinary demonstrations at fairs and expositions—were overlooked in encouraging the consumption of Indo-Chinese rice in the mother country. This campaign emphasized the fact that, although the grains are sometimes small and irregular, the best commercial varieties of Indo-Chinese rice compare favorably in quality and flavor with any other kind. At the same time, Indo-China had the benefit of French tariffs against the entrance of foreign cereals, while as a result of the advertising campaigns, Frenchmen were eating more rice. However, Indo-Chinese rice was finding its best market not as food but as feed for cattle; it is used today in most of the farms specializing in fattening beef and pigs. In spite of the progress made and notwithstanding its intrinsic qualities, many housewives still refuse to buy Indo-Chinese rice because of its poor appearance. Adequate preparation of the better varieties, the Gocong and Baixau in particular, is essential if they are to match the popularity of the Carolina and Piedmont strains.

The influx of Indo-Chinese rice has raised objections in France. Certain agricultural associations have denounced it as responsible for the fall in wheat prices, a rather exagger-

ated accusation since French imports of rice account for only one per cent of the national consumption of cereals and forage products.¹⁹ Had Indo-Chinese groups not made violent protests a duty of ten francs per quintal would have been imposed in 1934 on Indo-Chinese rice as well as on foreign rice entering France. Instead, smaller imports were encouraged by a 15 franc premium for each quintal of decrease. The denaturation of 600,000 tons of wheat, however, in the first eight months of 1935 made rice a more direct competitor of the national cereal as far as feed was concerned.

Indo-Chinese corn is also used chiefly as feed for domestic animals. As a matter of fact, France's consumption was between 700,000 and one million tons greater than the colony's production. Since 1932 the exchange compensation surtax and the quotas of foreign corn have favored colonial corn and particularly Indo-China's. The latter, now sent exclusively to the mother country, accounted for 80 per cent of France's corn imports in 1938.²⁰ As in the case of rice, however, corn also ran afoul of a systematic campaign to discredit it by claims that it was unsatisfactory for fattening cattle, even being injurious to their health.

In value rubber follows far behind corn among France's imports from Indo-China. Most of the rubber crop is still sent abroad thanks to lower freight rates and its relatively low cost of production. Between 1935 and 1937 France received from her colony an average of 11,000 tons annually, hardly one-fifth of her total consumption.

Indo-Chinese pepper, which is chiefly black pepper, is another commodity which demands imperial protection. Before the war, 1908 to 1912, the colony's production exceeded French consumption more than 1,000 tons a year. The quantities to be admitted at reduced tax rates had to be deter-

¹⁹ See the well-documented article, "Les importations de riz et maïs d'Indochine dans la métropole," in *Bulletin du syndicat des Exportateurs français d'Indochine*, 1938.

²⁰ In 1931 the Argentine supplied 82 per cent and Indo-China scarcely 10 per cent of the mother country's corn imports. In 1938 this cereal was unloaded chiefly at the Channel and North Sea ports, Dunkerque being the principal one; the remainder went to Marseilles and to the Atlantic ports. *Bulletin du Syndicat des Exportateurs français de l'Indochine*, 1939.

mined each year so as not to overstock French warehouses at Le Havre, Bordeaux, Nantes, and in the Paris area, where the factories which grind it are located. At present Indo-China ships about 2,800 tons a year to the mother country duty free; it is with difficulty that she manages to sell the remainder profitably abroad, where she competes with pepper from British Malaya and the Netherlands Indies where the cost of production is lower.

Most of Indo-China's tea sales are to France, thanks to the product's incontestable superiority, to the protective duty in force since 1935, and to a skillful advertising campaign which a recent law has increased. Exports to France climbed from 314 tons (1908-1912 average) to 542 tons in 1937, but this still does not fully meet the mother country's demands, small as they are.²¹

Indo-China's copra must not only compete with the foreign product (as does her tea) but with that from other French colonies too. Today the exports from French Oceania to the mother country far exceed Indo-China's, which held first place before the war. The latter, however, have increased in actual value from an average of 6,326 tons in 1908-1912 to 10,900 tons in 1936-1937.²²

At present, exports of coffee and of the rum which is a by-product of Indo-China's new sugar industry go exclusively to France, but in very small amounts compared to France's imports from her other colonies and from abroad. Recent agreements among the colonial producers, sanctioned by law, limit Indo-China's sugar exports to the mother country to 1,200 tons.

²¹ In recent years tea consumption in France has been fluctuating around 1,500 tons, or only 35 grams per person (as compared with 4.5 kilograms in Great Britain, 1.440 kilograms in the Low Countries, 400 grams in the United States and 80 grams in Germany). In 1937 France imported 1,385 tons of high grade tea, of which 542 tons came from Indo-China (being 99 per cent of the colony's total tonnage)—500 from Java, 223 from China, and 105 from India and Ceylon. More than half the black tea production of the Moi plateaus has to be sold on the unprotected markets in London, Amsterdam, Tunis and Egypt.

²² A recent administrative decision (November 1938) is bound to encourage imports of Indo-China's copra by the mother country.

During depression times mining products helped to improve Indo-China's balance of trade with the mother country. The appearance of Tonkin anthracite on the French market is the most surprising trade development in recent years. The difficulties of exporting to the Far East, caused by depreciated currencies and protective measures, led the coal companies to seek distant markets. Thanks to its quality and careful preparation, Tonkin anthracite can compete with Welsh and Russian coal in France, which is very deficient in this vital commodity; in 1930 only 35,000 tons were exported to France; in 1937 the total had increased to 250,000 tons. Most of it arrives as full loads on freighters which since 1934 have been going around the *Cape of Good Hope* in order to avoid high tolls of the Suez Canal. Dong Trieu's fame as a domestic fuel is now well established in France. However, it can only bear the cost of the long voyage when freight rates are low and these have increased considerably since the end of 1937.²³

The mother country still gets most of the pig tin refined in Tonkin, while the Nam Patène ores are sent to Malayan factories. Tungsten ores are bought largely by France, as are zinc pigs and ores; zinc exports to Belgium ceased in 1930 and to Japan in 1934.

Finally, it is France which buys almost all the cotton lace and coco fibre mats and a good many Tonkin cane mats, although she buys only a little of the fine quality straw and wicker work.

Indo-China's direct trade with other French colonies has also flourished since the depression, increasing from 2.4 per cent of the imports and 1.1 per cent of the exports in 1909-1913, to 3.3 per cent and 6 per cent respectively in 1936-1937. Indo-China's sales to other French colonies are larger than her purchases. Rice constitutes the bulk of these exports; shipments to French West Africa and French Equatorial Africa have increased particularly, amounting to 110,000 tons in 1936. The chief reason for this was the growth of peanut cultivation in Senegal and the consequent decrease in local food crops, especially millet.

²³In 1938 Indo-China exported 198,000 tons of anthracite to France.

Indo-China receives cigarettes²⁴ and wine from Algiers and cotton yarns and fabrics from Pondicherry. She herself has begun to export cotton goods to Madagascar. Sales of native tea have increased but they are still far short of North Africa's great needs.²⁵

Other Countries

In addition to the Far East and the French bloc, Indo-China has trade relations with a large number of countries, among which the United States and certain Western European countries stand out by the regularity and total value of their transactions. The United States sells gasoline and petroleum oils, ginned cotton, machines and metals, and buys rubber (16,000 tons in 1937), with tin and pepper next in importance. Trade with Great Britain is less important than it was before the depression; in exchange for rice, rubber and raw hides, Great Britain sends Indo-China a fairly large variety of manufactured articles—chief among them being tin plate, cotton and wool yarns and yard goods, and various metal articles. Excepting France and Great Britain, Indo-China's principal customers and suppliers are Germany, Belgium and the Low Countries.

Indo-China's Place in the Imperial Economy

Just as it is in all other countries, Indo-China's trade is determined by important geographical considerations and also by human desires. It is composed of natural and of apparently artificial trends, which it is not always easy to dis-

²⁴ Their quantity has decreased with the development of the cigarette industry in Indo-China. A recent agreement between Algerian and Indo-Chinese manufacturers grants Algerian cigarettes a quota of 34 per cent of Indo-Chinese consumption.

²⁵ Shipments of Indo-Chinese tea to Morocco are unimportant as 97 per cent of that colony's 1937 imports were Chinese green teas, uniform but often poor in quality. Tunis uses black tea but gets only 7 per cent of its imports from Indo-China; conferences are in progress to increase this proportion, by encouraging the entry into Indo-China of various Tunisian products. In 1937 Indo-China shipped 340 tons of black and green tea to Algiers (22 per cent of Algerian consumption) which assures this commodity tariff protection.

tinguish. Protective measures, dictated by special interests and by sentiment, help forge new economic structures, entirely dependent on such measures.

Indo-China's trade is divided between the Far East, her neighbor, and France, her ruler. Events have tightened the bonds with the mother country, and relations between the two have become closer and more equitable. Finding in her colony an outlet for the products of her industries, France has opened a wider market to Indo-China's exports, taking increasing quantities of rice, corn, rubber, tea and even coal, in payment for the French exports of fabrics, machines and other manufactured articles.²⁶

Thus new and unexpected ties have been created between France and Indo-China. The prosperity of France's import trade depends on the Indo-Chinese native purchasing power, and that in turn is contingent on crops in France. It is easier to sell Indo-Chinese cereals in France if frost has spoiled the feed cabbages in Poitou or if an early winter sends cattle back to their stables in Brittany or Normandy earlier than usual. On the other hand, it is much harder to sell them after a good French harvest of oats, barley or even wheat. The French price for Indo-Chinese corn singularly parallels the price of oats. If the Sudan fields are neglected by the "navétane" or ruined by floods or drought, or if famine ravages southern Morocco, Indo-Chinese rice will also benefit.

Could these imperial relations be widened still further? Undoubtedly they could if the commodities which France and the other colonies import from abroad and which Indo-China could theoretically supply, either in whole or in part, like tea, cotton, jute, silk, etc., are reckoned with, or if the discrepancy between the native's standard of living and that prevailing in Western countries is taken into the calculations. In such a case, the mother country's industries could supply the many new needs of Indo-Chinese people.

All this is far easier said than done. In fact, the attempts

²⁶ Imports from Indo-China accounted for 4.1 per cent of France's total imports in 1938. In the same year Indo-China purchased 3.1 per cent of the mother country's total exports.

to expand complementary production within the framework of the imperial economy have had very uneven success. They have succeeded as far as rubber is concerned and are progressing satisfactorily for tea, but they have failed in regard to cotton, jute and silk, for a number of very complicated reasons.

Though regrettable, these failures might be regarded as temporary only, and new and more constructive attempts could be made in the light of acquired experience. But it is doubtful, to say the least, whether Indo-China would benefit from greatly increased participation by France and the other colonies in her foreign trade, for it would cut down her trade with the Far East, where Indo-China has found and probably will continue to find for some time to come, the most dependable markets for many of her products. Indo-China's products are not always real complements to French ones. Contact with other colonies in the Empire could become competitive. The protest of French farming associations against the influx of Indo-Chinese cereals should not be forgotten. It is true that the protective policies initiated in Far Eastern countries were responsible for pushing certain types of trade toward the West. But this was, in some measure, a direct result of the tariff walls set up around Indo-China against her neighbors. Could not these barriers again be lowered to permit manufactured articles which neither French nor Indo-Chinese industry can furnish at prices commensurate with the native's buying power to enter the colony? It is paradoxical to expect a peasant who makes his living from poor crops yielding the most meager return to become the exclusive customer of factories located in an entirely different and more exacting social scene and producing articles better in quality perhaps, but expensive.²⁷

²⁷ It should also be emphasized that trade between Indo-China and France is encumbered with high charges in comparison with the price paid the producer. For various reasons—the problem is a complex one—freight rates are high and the charges added by middlemen often represent a considerable percentage of the selling price. For example, the Tonkin Agricultural Chamber recently complained of "the exorbitant claims of French importers who pay 5 or 6 francs a kilogram for a product which they sell to the consumer for at least 50."

Only time will prove the soundness of the various theories and forecasts. Indo-China no longer lives within herself but is involved in a very complex pattern of trade relations. She must adapt herself to constantly changing conditions. She need not choose between the French bloc and her Far Eastern customers for she will find her equilibrium only by balancing one against the other. It might be said, for example, that Indo-China could find a very large market for her tea in North Africa, but would not this then preclude the North Africans from importing tea from China which is an invaluable customer for many of Indo-China's commodities, and especially her rice? If France imported more Rumanian corn, where would Indo-China sell her supplies which France no longer took?

As a result of the large surplus of exports over imports—a normal condition for a tropical colony with an undeveloped economy and sustaining large invisible exports—Indo-China continues to have a favorable balance of trade with China and several other Far Eastern countries, while selling much more to France than previously. The Far Eastern countries could take advantage of this to make new demands. But the policy of imperial consolidation tends to encourage trade between the imperial French group, on the one hand, and other nations or empires on the other. It is obvious then, that the French bloc's balance of trade *vis-à-vis* China and Japan is unfavorable. Compensations can be found and can be made profitable by means of extra-imperial currents of trade.²⁸

These non-imperial trade relations should not only be established in the Far East. Having an adverse balance of trade with certain European and American countries, France in return could request larger markets for Indo-China's products, for example, for rice on the Central European markets, such as Germany and Poland.

The author feels, however, that if economic imperialism is to benefit both Indo-China and the mother country, the for-

²⁸ René Hoffherr, "Comment organiser une économie française d'Empire," *Politique Étrangère*, April 1938, pp. 187-196.

mer must remain open to the rest of the world and particularly to the Far East.²⁹

²⁹ The rapid increase in trade between France and Indo-China has shown up the inadequacy of France's merchant marine, particularly as far as exports are concerned. In 1936, French ships carried 212,000 tons out of the 495,000 tons of total imports, but they carried only a little more than one-tenth of the exports—495,000 tons out of 4,448,000 tons.

Thus most of Indo-China's commodities shipped to the mother country are carried in foreign bottoms. There are many reasons for this. The boats of the regular French lines with their numerous decks are not suited to the transport of coal; they call at only a few French ports; they can carry only 250,000 tons of cereals a year. Even the regular foreign lines do not have enough space to carry all the rice and corn shipped from Indo-China to France. Consequently 55 to 65 per cent of the cargoes from Indo-China are loaded on tramps, almost all of them foreign, for it is well-known that the French fleet of ocean-going tramps is very small. In addition, the relatively high French freight rates, which were recently increased, also tend to favor foreign vessels. Among them, those most active in Indo-Chinese trade and most often seen in her ports are, first of all British, and then Japanese, Chinese, Norwegian, Greek, Italian, Dutch and German ships. It should be noted, however, that thanks to her regular passenger liners French ships surpass all others in tonnage leaving and entering the colony. See *Bulletin du syndicat des Exportateurs d'Indochine*, April 1939.

CHAPTER IX

CONCLUSION

Whatever may be Indo-China's destiny, the establishment of French rule on her soil will always mark an important milestone in her history. It is undoubtedly true that statistics and graphs depict the economic development of a country. It is said rightly that figures are eloquent. The famous saying about lies and statistics is untrue if the statistics are properly compiled and interpreted. From among these dry, detailed data the author has chosen those which seemed at once the most accurate and the most significant. At the same time he has always kept in mind the purpose of this study, which was to portray the people behind the statistics. It is to a consideration of these human problems that we now return.

As a result of French activity the average standard of living of the Indo-Chinese has risen in fifty years. The size of the increase cannot be computed exactly, but after learning the reminiscences of old-timers and comparing the descriptions given by early travellers and white missionaries with the picture we see today in the Indo-Chinese countryside, there can be no doubt about it. While poverty among the natives is less widespread than formerly, it has by no means disappeared. *The visitor to the northern deltas sees woeful evidences of it.* Particularly if he leaves the highways and wanders into the swarming market places and penetrates into the intimacy of villages hidden behind tall bamboo hedges, he no longer wants to boast (as some still do) of the riches of the Annamite plains.

The trouble is that the colony's human resources have grown as fast as have the opportunities offered to them. The exhaustion and disappearance of native populations on contact with white men, for instance in North America and on many islands in Oceania, are often deplored. But colonization has another effect, at least as common as the first—population density due to the development of resources, the absence

of disturbances and wars, the progress of medical aid and, particularly, the lowering of the mortality rate and the prolongation of the average life span by the increasingly efficient prevention of large epidemics. This phenomena is most striking in the countries of monsoon Asia—India, Java and the northern plains of Indo-China—where the ratio of population to cultivable area is among the highest in the world.

Overpopulation is the fundamental problem, the one on whose solution depend all the others. The education of the native masses can succeed only when there is a minimum of material comfort. While people are hungry, no social changes can be accomplished—no matter how desirable. Politics and economics are closely linked: the native must, of course, have a growing share in governing his own country; but also, in order to carry out these duties, he must have a large daily ration of rice, supplemented with other foods, to build up his physical strength. This is a difficult problem to solve and one of the white man's greatest burdens. Will he not be worn out in his double attempt to increase the native's life span and feed him better? Can the development of resources keep pace with population growth? The calculations of demographers, while based on questionable census figures, predict astounding population totals by the century's end. It may be that birth control is the only solution. Perhaps it may appear earlier than we anticipate and help to contradict these distressing predictions. Already it is timidly practised among the more progressive Annamites—the minor officials and city employees. But appropriate steps to encourage it have not been taken by the government and it has not yet entered the peasants' thoughts.

The only other thing to do is to constantly enlarge the means of livelihood open to the native population. As has been seen, this task grows more and more difficult, as it has in neighboring foreign colonies. A well-worn theme in political speeches and writings is to say that much has been done but that much still remains to do in this direction.¹

¹ According to a recent estimate (*L'Industrialisation de l'Indochine*," in *Bulletin de la Société d'Études et d'Informations Économiques*, No. 263, November 21, 1938, pp. 8 and 11); Indo-China's entire revenue, in

Remedies for malnutrition are numerous; they have been introduced and tried with varying success for a long time. The cultivable areas have been greatly increased by the draining of Cochin China, but the rate of expansion henceforth will be less rapid. The great irrigation canals have increased and stabilized the yield of the old rice plantations in some parts of the deltas; other sections will benefit from them in years to come. Domestic colonization permitting the migration of excess populations from Tonkin and Annam into the southern plains and the back country has had only meager results up to now, but these should improve. Its success, at least in the mountains, depends on "selling" the natives on new crops which will grow on dry soils above the irrigable lands whose still available areas are limited. European enterprises, both agricultural and industrial, can expand and, through the wages they disburse, can help to feed the surplus labor supply in overpopulated regions, but they can do this only on condition that they enlarge carefully and do not kill off the innumerable small factories of the countryside.

France has built thousands of kilometers of railroads, highways and canals, has built and reinforced dikes and has moved enormous masses of earth. All these projects could doubtless be extended and completed. But then there is the question of whether the era of great public works will not soon be ended; or at least, if it should not give way to the development of smaller detailed projects carried out in close cooperation with the native communities in the canton and village.

Following the introduction of Western techniques which on piastres, has more than tripled since the beginning of the century, while the population has certainly not doubled. But this comparison does not indicate precisely the increased resources and the improved living standards among the native masses. As a matter of fact; the following points should be noted: 1) the piastre's buying power is not what it was in 1900; 2) this increased revenue has not been equally distributed. For example, according to an inquiry made in 1936 at the request of the Minister of Colonies, the profit from the sale of rice exported from Saigon was apportioned as follows: 26 per cent to the producers, 33.6 per cent to the middlemen, 21 per cent to the carriers, 5 per cent to the factories, 14.4 per cent to the public treasury. And this for a crop whose cultivation remains almost entirely in native hands!

the whole were beneficial even though they seemed brutal at times, the next step is to instil a new spirit in the native, to interest him in improved and more productive methods of work. It will become increasingly difficult to extend the traditional methods of cultivation to new areas. On the other hand, it is clear that the peasant will gain enormously, as far as the actual yield of the important food crops or export products are concerned, by adopting new agricultural methods. The task of educating the native will call for a thorough knowledge of native psychology and society. Both have valuable qualities and successful native education must be based on them. It is a cultural rather than a sheerly technical job in which the school master will participate at least as fully as the rural engineer and the agronomist.

Whether the projects are large or small, they will cost money as well as effort. Rural schools must be multiplied and must be built to suit the needs of various regions, in order to improve and extend the educational system—already one of the most intelligent and liberal in any colonial territory. Then there are the evils of traditional usury, the tremendous burden it imposes on the peasants and the obstacles it raises to any lasting progress. It is a scourge which can only be removed by the substitution of a sound system of cooperatives and popular credit. A start has been made in this direction and, although setbacks have been encountered, new experiments are now being carried forward. Such social improvements require full governmental support for a long time to come.

It will be asked whether these responsibilities and anxieties will repay the mother country, since their profits are uncertain and in any case would not mature for many years. That may very well be the case. In this connection, it would be interesting to compare the material benefits which France has gained from the occupation of Indo-China with those reaped by the native. Not even an approximate calculation of this type has been made and it would be very difficult to do. When everything is taken into consideration, the advantage does not seem to have been on the side of France, and this may become even more pronounced. Admittedly many of the enter-

prises which are indispensable to the progress of Indo-China and to that of other colonies will not pay immediate dividends. Perhaps they never will, measured in purely financial terms. But they should be considered as long-term investments, like money put into an annuity. In the long run, colonization must have aims other than the mere balancing of accounts to truly justify it.

SUPPLEMENT

RECENT DEVELOPMENTS IN INDO-CHINA: 1939-1943

By

JOHN R. ANDRUS AND KATRINE R. C. GREENE

SUPPLEMENT

RECENT DEVELOPMENTS IN INDO-CHINA: 1939-1943

The purpose of this chapter is to summarize what little is known in the United States about developments in Indo-China between 1939, when Professor Robequain wrote the preceding study, and mid-1943, after the completion of the American translation. Criticizing the colony's economic and moral isolation, Professor Robequain eloquently urged that France permit Indo-China to assume a greater and more responsible role in Far Eastern affairs. The global war, with the abrupt diminution of Indo-China's trade with France, soon proved his thesis. By its geographic position alone the colony was the key to Japan's southern expansion. In 1942 it was Japan's military entrepôt—the center of the starfish-shaped pattern of successful Japanese drives into the Philippines, Malaya, Netherlands India, Burma and South China.

Regular coverage of Indo-China by the leading American news agency did not commence until the spring of 1940, and the outbreak of war in the Pacific promptly cut all direct news channels. American economic interest in Indo-China itself has never been great, and thus the colony's relationship to Japanese hemispheric plans in recent years has constituted the focal point of American concern. This chapter is therefore concerned more with Indo-China's Far Eastern and world position, with special reference to the present war, and less with internal problems and achievements than Professor Robequain's study.

In acquiring Indo-China Japan merely carried out the almost bloodless type of conquest first used in Manchuria, and then perfected by the other end of the Axis in overrunning Austria and Czechoslovakia, and thus building up bases and an economic foundation from which more violent conquests could be made at a later date. Indo-China offered one more avenue for

an attack on China. Cam Ranh Bay, which the French intended to make into a great naval base may have been thus developed by the Japanese, after they took possession of it in 1941. This splendid natural site sheltered the fleet of Russian Admiral Rozhdestvensky on his way to Tshushima and disastrous defeat in 1904—the first occasion on which it flickered on the screen of world history. This base is almost mid-point on a straight line from Singapore to Hongkong, and is about the same distance by sea from Bangkok, Manila and the ports of Sarawak and North Borneo. The advantages of such an advance base for the concentration of military forces and supplies which might be promptly used in any one of a number of theaters are obvious.

A summary of Indo-Chinese happenings since 1938 is, in fact, hardly a colonial story at all. It is part of a world story—a world suddenly become conscious of its limits and struggling toward some form of unity with them. From the fall of France in June 1940 to the complete occupation of the country in 1941, the Japanese found the way of southern expansion easy and profitable, thanks largely to the military conquests and threats of conquests of their German partner in conquest.

Developments During 1939

Although Indo-China's economic relations with Japan were satisfactory, political tension was great. The Haiphong-Kunming Railway, through the southern gateway to China, again came to the fore as a bone of contention, just as the spheres of influence in southern China had previously caused British-French friction in the days of colonial expansion.

A series of Sino-Indo-Chinese commercial and immigration agreements, partly agreed upon in 1930, but finally published and placed in effect in 1935, provided for immigration and emigration between the two countries on reasonable terms. Chinese goods from Chinese ports travelling to Kunming paid but one per cent transit duty, against one-fifth of the normal duty, payable by similar goods from other countries travelling over this railway. (Foreign goods later paid 4 per cent duty for travelling through Indo-China.) Most Chinese goods originating in the provinces bordering Indo-China could be exported

through the latter country duty free. Munitions might be shipped across Tonkin at the wish of the Chinese government, free of transit duty.

This latter provision naturally led to conflict between Japan and Indo-China when, in 1937, the blockade of Chinese ports by the Japanese caused the Haiphong-Kunming and Hanoi-Langson railway lines to carry an ever increasing portion of China's military supplies. It may be noted in passing that the French position *vis-à-vis* the Sino-Japanese war was roughly parallel to their position during the Spanish Civil War. Both in the Pyrenees and in the mountains of northern Tonkin the French government, from a policy of prudence and caution, built a wall against arming its own potential allies. Restrictions on the movement of war materials over the line were applied early but irregularly by the French. In the course of 1938 Japan and France agreed that the frontier should be open only to goods contracted for before July 1937. The Czechoslovakian crises may have helped convince the French of the wisdom of such a move, thus inaugurating a long series of occasions when French Indo-China, suffering from a blow at the heart of the Empire, had to submit to a well-timed demand from Japan, which was even more able militarily to enforce its will than was Germany.

This prohibition was modified in some cases, but although freight carried over this railway increased in both 1937 and 1938, traffic was irregular and subject to much interruption. Certainly from the Chinese point of view the railway was grossly inadequate. In December 1938, after additional Japanese protests, the Indo-Chinese authorities stopped all transit to China over the Yunnan Railway, including trucks, Red Cross supplies and United States-owned gasoline and planes, all of which were awaiting shipment. Following this success, early in February 1939 the Japanese announced their occupation of China's Hainan Island, which commands not only the Shanghai-Hongkong-Singapore shipping lanes, but blocks the Gulf of Tonkin and the port of Haiphong. In reply the French re-opened the Yunnan Railway to Chinese war materials on March 20.

The Haiphong-Kunming line has always been more prof-

itable than the other sections of Indo-China's railways (see above, pp. 94-98) but as an indication of the effect of the early part of the Sino-Japanese war on traffic over this route (even though frequently interrupted) the figures in Table 21 are illuminating.

TABLE 21

INDO-CHINA RAILWAY STATISTICS

	<i>Profit per kilometer exploited</i> (in piastres)		<i>Freight carried</i> (thousands of metric tons)
	<i>All Lines</i>	<i>Yunnan Line</i>	<i>Yunnan Line</i>
1936	552	1,834	302
1937	1,164	3,480	321
1938	1,190	6,830	397
1939*	1,858	4,309	405

* First nine months. Unrestricted shipment of munitions did not commence until March 20.

The great increase in the monthly rate of shipment in 1939 was partially attributable to the purchase of new rolling stock by the French, increasing the theoretical capacity of the line by about 200 per cent. There was no lack of business for the line, for 200,000 tons of goods were reportedly awaiting shipment at Haiphong in the summer of 1939 with great additional stocks ready to be sent from Hongkong and the United States.¹

April of 1939 brought nerve-racking Japanese moves on both sides of Indo-China. The Spratly Islands, about half-way between Saigon and North Borneo, were occupied on April 1. Although France had given notice of occupation of the islands and suggested arbitration, the Japanese cited their rejection of the annexation notice in 1933 and proceeded to take over. A fortnight later the Chinese town of Mengtze, important center on the railway to Kunming, was bombed.

The Japanese pressure on Indo-China was coordinated with the recurrent crises in Europe and was made particularly easy by the unarmed state of the colony. One school of thought had been vigorously pressing, in France, for strengthening the defenses of Indo-China and for a policy of friendship toward

¹ Kurt Bloch, "China's Lifelines and the Indo-China Frontier,"—*Far Eastern Survey*, February 19, 1940, pp. 47-48. Quoted by Levy, Lacam and Roth, *French Interests and Policies in the Far East*, p. 128.

the Chinese. Others—the more conservative and powerful group—feared the Chinese more than the Japanese, because of the Communist element in China. Georges Mandel, Secretary of Colonies in 1938, initiated a scheme for munitions' manufacture and other military measures, including a 400 million franc loan for the fortification of Cam Ranh Bay, voted in August 1938. Unfortunately, the bay was not fortified before the Japanese took over, nor did the plans for an aircraft factory and a blast furnace come to fruition. In February 1939, after a three-months' inspection trip, Deputy Edouard Bousquet, in Paris, was urging the strengthening of the colony's defenses, fleet and air power. In June 1939 all the commanders of French Far Eastern forces met at Singapore for a conference with the general staffs of British and Dominion forces in the Pacific, which only led to agreements to maintain "continuous contact" in regard to the defense and fortification of Pacific possessions. Even by May 1940 all that could be reported were general increases in war and defense budgets and statements that air-fields, roads and ports were being developed—all these being jobs which required a minimum in the way of specialized supplies from France. By mid-1939 Indo-Chinese troops numbered some 50,000, nearly double their size a year before, but although this and the various defense projects represented greater strength for the colony, they were wholly inadequate against any serious threat, particularly since the air and sea forces, tiny enough in 1938, had been increased but slightly by 1939. The mechanized equipment of modern warfare was conspicuously absent. September and the European war found the colony defenseless, so traffic over the Haiphong-Kunming railway to China was promptly stopped, not to be resumed for nearly a month.

During the first world war Indo-China suffered minor Annamite revolts, and in 1930 a very serious riot broke out in Yen-bay. It was therefore feared that similar outbreaks might take place when war was declared in 1939. Governor General Jules Brevie was shelved and General Georges Catroux was recalled from retirement to take the brunt of rapidly-moving events. Partly because of the vigor and ability of General Catroux and partly because Japanese activities in China had aroused

skepticism on the part of the Annamite élite regarding Japanese protestations of friendship and protection, there was less anti-French agitation than had been feared.

The main politico-military developments of the remaining months of the year were Japanese activities north of the Tonkin border and repeated demands that arms' shipments to Kuning be discontinued.

Indo-China's war expenditures in 1939 prior to the outbreak of war in Europe occasioned the rather febrile prosperity which usually accompanies such military programs. Prices and the cost of living increased considerably along with production and total foreign trade. The year as a whole was more prosperous than its predecessor. Government control of the economy was inaugurated in September, foreign exchange was more strictly controlled than before, exports were controlled, and only essential goods could be imported under a new system of imports.

World demand for raw materials stimulated the colony's exports considerably, and there was a smaller increase in imports. Rice shipments jumped from 1,077,637 metric tons in 1938 to 1,670,822 tons, in 1939, rubber exports increased from 58,231 tons to 68,880 tons, and total exports weighed approximately 15 per cent more than in 1938. Cotton textiles, metals and manufactures, raw cotton and petroleum products were the chief imports, as usual, and all increased markedly both in quantity imported and in value.

The disruption of French shipping and other dislocations in French economic life caused a fairly prompt decline in trade with Europe, but Japan and the United States gradually increased their share of the export trade, although Japan sold much less than previously to Indo-China, thus reversing the trend in the trade between the two countries since 1932.² Similarly United States' imports from Indo-China increased so that this country stood second among purchasers of Indo-Chinese products taking 12.1 per cent of the total exports. American sales to Indo-China decreased slightly, however, and this country dropped to fourth place (following France, Hongkong and the Netherlands Indies) among suppliers of goods

² See above, p. 329.

to Indo-China. The United States stood first among purchasers of Indo-Chinese rubber.

The drastic rise in the cost of living is indicated by the following table:

TABLE 22
WHOLESALE PRICE INDICES (1913=100)

December 1938	154	March 1941	227
December 1939	191	June 1941	292
December 1940	219		

Developments During 1940

With a general at the head of the civil administration, and with Europe's "sitzkrieg" giving a false sense of security, 1940 commenced in Indo-China with a wartime boom. Some defense work was proceeding, roads and airdromes were being built and improved, production was reaching new levels and new land was being cleared to meet war's demands for more tea, hides and rice. Government receipts increased and trade control measures did not occasion many complaints.

The completeness and suddenness of German victory in the spring of 1940 left the colony virtually helpless to resist Japan when the latter country renewed its old complaint—shipment of war supplies to Kunming. The Chinese end of the railway was heavily bombed in mid-June. A military spokesman warned that Japan would wean Indo-China from its "hostile" attitude. By the time of the Franco-German armistice, M. Arsène-Henry, Ambassador to Japan, was promising to prohibit all transport of war supplies to Kunming. The Japanese increased their demands, asking for lists of railway rolling stock in Tonkin and the right to inspect the railroad and station patrols at the border and even at Hanoi.

Rumors flourished, all menacing. Naval and military concentrations were reported near Hongkong, at Hainan, on their way to Haiphong. The French acceded to the Japanese demands. Then less than ten days after the armistice the French government informed General Catroux that Admiral Decoux would replace him. It is possible that the new German masters dictated the change.

General Catroux delayed handing over power until July 21, and it has been suggested that he was hoping for an opportunity and for assistance from other nations, which would have made it possible for him to resist the Japanese. At any rate, he handed over power and although he was accused of fomenting a revolt a month later, there is no evidence that he continued to influence affairs in the colony, and in any event, no revolt occurred. Meantime Admiral Decoux continued the unenviable task of attempting to salvage as much as possible from a hopeless situation.

The French retreat was made rather slowly, with great legality and with every twist of passive obstructionism. A last-minute appeal was sent to Washington. Before the Franco-German armistice Colonel Jacomy and a military mission had been sent to the United States to buy planes and munitions for Indo-China, but the urgency of bolstering America's relatively weak defenses and meeting Great Britain's desperate needs for equipment caused this country to suggest that Vichy send the 130 new American fighters and bombers marooned in *Martinique to the Far Eastern colony*. German pressure at Weisbaden made France refuse to take this seemingly logical step. Meanwhile French credits in the United States had been frozen, so Colonel Jacomy left in defeat.³ Although Thailand, a "neutral," was permitted to purchase half a million dollars' worth of planes in this country at the same time, the planes were eventually detained in Manila.

By early August the Japanese mission in Hanoi, under Colonel Sato, numbered one hundred or more, and continued the thorough work of its forerunners, which work had been described by a French journal in the following impassioned terms:

Penetrating from all sides, boldly making ciphered notes, photographs, plans and maps; checking the accuracy of our maps; adroitly raising dissatisfaction with France; surveying our coasts, bays and inlets, our rivers and their mouths; making plans of the smallest depressions and elevations of ground around our fortifications; counting all our small forts and blockhouses; making notes of the sites

³ Colonel Jacomy is now (August 1943) commanding officer in *Martinique*.

of railway and road construction; keeping in touch with changes in our officer personnel; studying their characters, customs and weaknesses; carefully counting the number of our soldiers in barracks and garrisons, the number of pieces in our artillery parks, studying our provision warehouses, fuel stores and ammunition dumps; investigating the quality and characteristics of our new munitions; studying the strong and weak points of our airfields, the distribution of our landing places, the importance and characteristics of our air and naval bases—in short, using all their tenacity and shrewdness to penetrate into our smallest secrets, hoping in the near future to use them against us—these Japanese spies know our colony now just as well as we do, in its smallest details.⁴

Admiral Decoux had assumed the Governorship, reinforced with wide powers to negotiate, although in practise he referred many matters to Vichy, perhaps as a means of delaying the Japanese advance. It was an auspicious moment for new Japanese demands:—the right to move Japanese troops and supplies across Tonkin; to use air-fields; to base naval planes at Hai-phong; for Japanese planes, both commercial and military, to fly over Indo-Chinese territory; and for Japanese control of incoming and outgoing tonnage at the ports of northern and central Indo-China. The groundwork for these demands had been laid prior to the fall of France. Tokyo also demanded that work on defense projects must cease and that a new trade agreement be negotiated. Indo-Chinese troops were moved toward the Chinese border to face the rumored concentrations of Japanese troops across the line, and more men were called to the colors, but Decoux did not have at his command sufficient military strength to make more than a token stand against the aggressors. It was apparently a realization of the hopelessness of the military situation which had caused Catroux to give up his post without a fight.

By August 1940 Japanese pressure had secured a reduction officially estimated at 80 per cent, in the trade between the territory of Kwangchowwan, administered from Hanoi, and the Chinese hinterland of Kwangsi and Kwangtung. High-handed Japanese measures in the French Concession at Shanghai probably contributed to the French tractability in

⁴ *Tribune Indochinoise*, March 17, 1939. English translation quoted from Levy, Lacam and Roth, *op. cit.* p. 120.

this regard. It may be noted, however, that the Japanese formally occupied Kwangchowwan in February 1943.

Pressure was then brought on the other side of Indo-China by Thailand, out of whose domain part of Indo-China had been carved by the French. It is not known to what extent the Thai moves against Indo-China were motivated by a desire to cooperate with the Japanese, and to what extent by the desire to regain lost territory, but in any case five Thai divisions were reportedly massing on Indo-China's southwest border as part of a move to recover "Thailand Irredenta." In mid-September Bangkok officially demanded the return of Luang Prabang and Bassac in Laos and part of Cambodia, plus certain islands in the Mekong. Intermittent border clashes began at the end of September and continued until December when they merged into the undeclared type of war which was almost *de rigueur* with the Axis at that time.

Decoux referred the Thai demands to Vichy which in mid-October told him to resist any violation of the colony's borders, meantime agreeing to arbitration of the Mekong River island question. In early December a Thai-Japanese treaty of amity was signed, and soon a state of war existed, the Thai receiving Japanese aid in the form of munitions. The conclusion of this war in March 1941 will be dealt with in a succeeding section.

The setting up of the de Gaulle committee in London and the adherence of New Caledonia, French Equatorial Africa and the Cameroons to the Fighting French has been linked by some observers with the domestic unrest which occurred in Indo-China in the fall of 1940. Americans who were in the country at the time state that while there was much de Gaulle sentiment among the French in the colony, this sentiment had nothing to do with the uprisings of November 1940 in Cochin China, or the later unrest in Tonkin. The exact nature of these small "rebellions" is not known in this country, but the most likely suggestion is that Annamite nationalists (sometimes called communists) were instigated by the Japanese to make trouble for the French just as both Thai and Japanese were bringing pressure to bear. It is even possible that the Thai may have had some part in stirring up unrest. In any case, the

rebels were suppressed, the jails overflowed into prison ships in the river, and there were a number of executions.

In connection with the attitude of the French in Indo-China, it should be pointed out that opposition to the Japanese and also to the Germans did not necessarily signify support of de Gaulle. However, in the fifteen months between the departure of Catroux and the setting-up of the Darlan government in North Africa, the de Gaulle movement was the only important effort to rally French opposition to the conquerors. Considering the large numbers of wealthy businessmen, planters, etc., in Indo-China, it is likely that the French population there would be more easily rallied behind a movement less associated with the Left than that of General de Gaulle. In the absence (until recently) of any other movement to support, however, there appears to have been some support for the latter.

Japan proved adept at moving the site of negotiations from Hanoi to Vichy to Tokyo, and now negotiations were taken to Vichy, with the result that a Japan-Vichy pact was announced on September 4, granting the Nipponese certain military privileges, the details to be worked out at Hanoi. In the latter capital the details were arrived at under the supervision of Japanese naval craft, military missions and other useful arguments. The pact stated Japanese recognition of the "principle" of Indo-China's territorial integrity, and French recognition of Japan's "special position" in the Far East.

Before the conference on "details" could get under way the Japanese commander on the spot demanded immediate right of passage for his troops across the colony. Decoux refused, and negotiations took place in Vichy, Tokyo and Hanoi simultaneously. Japanese troops crossed the border at Dong Dang on September 6, and after a last rumored threat of a Japanese request for Cam Ranh Bay, almost all Japan's demands were accepted and a further treaty was signed on September 22, permitting Japan to station some six thousand troops and to use three airdromes in northern Indo-China. No cities were to be occupied and economic questions were left to a subsequent pact. The Chinese recognized the symptoms of

imperial collapse and destroyed the international bridge at Lao Kay on September 10, cutting the line to Kunming.

Notwithstanding this highly successful settlement, Japan's "Canton Army" had the satisfaction of going into action. On September 22, the very day the agreement was concluded, they opened hostilities against the French garrison at Dong Dang, then occupied Langson and proceeded north toward Cao Bang, near the Chinese border. This little military exercise cost a number of lives on both sides, but it gave the Japanese an opportunity to test French military efficiency and equipment. On September 27 Japanese troops moved peacefully into the French barracks at Haiphong under the terms of the agreement, and the occupation of northern Indo-China was a reality. There is little doubt that concurrent Thai demands on the other side of Indo-China contributed to the cheapness of the Japanese "victory."

After a prosperous beginning, Indo-China's economic condition deteriorated rapidly in the last half of 1940. Trade control measures, inaugurated in 1939, were maintained and were applied quite strictly in the second half year. Licenses or permits were required for imports and for such export products as rice and corn. Primarily these restrictions aimed at securing as much foreign exchange as possible, American dollars in particular. In the first ten months of the year Japan carried out her 1939 agreement to pay in American dollars for purchases of Indo-Chinese rice, but in November and December objections were raised. Monetary embarrassments were caused when rather large sums deposited by Indo-Chinese banks in the United States, India and Great Britain were "frozen" after the Franco-German armistice. The failure to secure the release of most of these funds hampered Indo-Chinese trade.

Since over half of Indo-China's total foreign trade had normally been with France, this linking of economies proved unfortunate for the colony when the war stopped such trade almost completely. Naturally foreign trade suffered appreciably. Britain's great entrepôts, Singapore and Hongkong, accounted for approximately 18 per cent of Indo-China's exports and 13 per cent of the imports in 1937, and their share declined but

slightly in 1938 and 1939. As pointed out above (p. 330) most of this trade was transit trade, so when French ships began to encounter serious obstacles at British ports a French service to Manila was started. French trade with the United States and part of the trade with Australia were routed via Manila, and some goods already in Hongkong were sent to Manila before being trans-shipped to the colony. Thus the normal channels of trade were largely disrupted, and the new channels were inadequate. American consular officials in Indo-China who previously replied cautiously if not discouragingly to prospective American exporters began to suggest that there was a large market in Indo-China for American goods, provided the right trade contacts in the colony could be secured and the other regulations duly observed.

Between July and December the United States purchased almost all Indo-China's high grade rubber (normally about 80 per cent of total rubber production) amounting to about 54,000 metric tons, against 16,000 tons in 1937, 21,000 tons in 1938 and 29,000 tons in 1939. In return, Indo-China purchased 59 per cent more from the United States in 1940 than in 1939, the chief categories being cotton, cigarettes, machinery and iron and steel products.

Japan's trade with Indo-China quite naturally increased faster than did that of the United States. That country became the colony's second best customer, chiefly by virtue of a remarkable increase in rice imports from Indo-China. The following table shows exports of rice from Saigon, in metric tons, in 1939 and 1940:

TABLE 23
SAIGON'S RICE EXPORTS

	1939	1940
France	461,035	90,584
Other European Countries	147,484	49,180
French Colonies	137,304	104,256
Hongkong	162,212	244,051
Other Chinese Ports	78,148	234,863
Japan	7,727	475,552
Totals	1,680,882	1,467,414

Indo-Chinese rice interests were fortunate that conditions in Japan and Japanese-occupied China created a greatly increased demand for their product just at the time that the market from Europe and North Africa collapsed. Much of the rice sent to Hongkong and "Other Chinese Ports" was probably shipped to Japan, or used to feed Japanese troops in China.

The continuation of trade restrictions and their intensification during 1940 prevented imports from increasing, in spite of the increased spending power of many economic groups. Value of imports in the first eleven months of 1940 was 176,400,000 francs, against exports of 332,400,000 francs. Both figures were considerably below the 1939 levels.

Japan continued to supply relatively little to Indo-China, contributing but 1.6 per cent of the colony's total imports, by value, in the third quarter and 4.9 per cent in the fourth quarter. Japanese preoccupation with war industries probably prevented an expansion of exports to Indo-China then as in the following years.

Indo-China's transport, both inland and ocean, suffered considerably and promptly. Arrivals of ocean-going vessels at Saigon decreased from a 1939 average of 63 per month to 48, the corresponding figures for Haiphong being 45 and 30. *Air France* and *Imperial Airways* both suspended their international services although the former still maintained domestic services between Hanoi and Saigon. At the end of the year only KNILM was still running a weekly flight to Singapore from Saigon, while the Japanese had started two lines from Tokyo to Bangkok, one along the Indo-Chinese coast and the other across the center of the colony. These, however, were far from being mere commercial ventures. They carried only Japanese passengers who travelled for political and military rather than economic purposes.

Naturally, the Haiphong-Kunming Railway suffered most drastically, for the tearing up of the rails north of the border caused an enormous decrease in traffic on this, the most profitable of the colony's railway lines. Some of the lost international traffic with China was compensated by the transportation of Japanese troops and supplies with Tonkin, but payment for railway services was less certain than before.

Developments During 1941

The most pressing of the many items on Indo-China's agenda of foreign affairs at the beginning of 1941 was the undeclared war with Thailand. Jungle raids, bombs and virulent radio broadsides did not cause the breaking-off of diplomatic relations. The French Minister in Bangkok and the Thai Minister in Vichy remained at their posts, trying to settle the dispute. The Bangkok radio assured its listeners that Thailand would open negotiations at any moment, and Hanoi would retort unofficially that the colony was merely waiting for an invitation to start conversations. A Vichy spokesman would call Thailand's depredations intolerable, and in the next breath assure the world that diplomatic conversations were continuing. In mid-January Vichy suspended commercial intercourse by land between Indo-China and Thailand, and sent a new commander-in-chief, General Mordant, to replace General Maurice Martin. Hostilities grew into a small-scale Thai invasion of several border areas. The tiny navies met in January in the Gulf of Siam and the French sank the "main force of the Thai fleet," variously described as two torpedo boats or two destroyers, and returned without loss.

Japan, having secured a treaty of amity with Thailand, suggested mediation in December, but Ambassador Arsène-Henry in Tokyo declined. The offer was repeated, to Vichy, in January and was accepted. The mediation was as unconventional as the war. Ten thousand Japanese troops were reported in the north, and the Japanese occupied Haiduong, industrial city between Haiphong and Hanoi, again violating the September agreement. A truce was signed on January 27, but hostilities were ended only four days later when an armistice was concluded on a Japanese cruiser in Saigon Harbor. Japan's fee for services as peacemaker proved to be a treaty guaranteeing receipt of 80 per cent of Indo-China's rice exports, while Japanese buyers were to have first choice on the remainder.

The delegates moved to Tokyo, where Foreign Minister Matsuoka took charge. Some of the terms of the agreement were reportedly more severe than Thailand had asked, and Vichy protested, but finally submitted and on March 11, before the

details were yet complete, the treaty was initialled so that Matsuoka could leave on his crucial mission to Berlin. In supplementary letters exchanged at this time Japan, France and Thailand assured each other that neither of the latter would ever join a combination hostile to Japan, while Japan guaranteed the new frontier. (Thailand's promise at this time should be remembered in connection with that country's capitulation to Japan on December 8, 1941.) The final terms of the treaty were described as follows:

(1) France ceded Pak Lay, the area west of the Mekong in Luang Prabang, northwest Laos. The new frontier between Cambodia and Thailand gave all of Cambodia west of the Mekong and north of Angkor Wat to the latter country, but reserved that archaeological center to Indo-China. Immediately west of Angkor Wat the boundary turned south, bordering the Great Lake for some distance, and then proceeded southwest until it joined the old frontier just north of the Gulf of Siam.

(2) The ceded Cambodian territory was demilitarized. French nationals and Indo-Chinese natives were to enjoy equal treatment with the Thai as regards entry, domicile and occupations.

(3) The government of Thailand was to respect the mausolea of the Luang Prabang royal house, situated in the triangular zone lying opposite that city, and afford facilities for its preservation and for worship.

(4) The center of the Mekong's deep water channel was the boundary, but Khong and Khone Islands were to be jointly administered.

(5) Thailand agreed to pay France 6,000,000 piastres in six annual instalments.

(6) Any future disputes were to be mediated by Japan. Japan guaranteed that the settlement was definite and unalterable, and the Japanese text of the treaty would be authoritative in case of dispute.

In summary, Thailand received a little more than 25,000 square miles of territory, including Battambang, one of Indo-China's best rice areas, where the Société Rizicole de Battambang, using modern mechanical means of cultivation, produced and sent to France the best grade of rice. The territory was popularly supposed to contain a population of a million, but detailed examination of census data and estimates places the figure nearer 700,000. The cost to Thailand was unimportant military losses and six million piastres, but the Thai were still not completely satisfied.

The year 1941 began with Vichy's formal gesture granting "dominion status" and tariff autonomy to Indo-China, thus formally recognizing the colony's interrelations with and dependence upon its Pacific surroundings. Decoux then issued a number of edicts designed to reinforce Indo-China's economy in dealing with Japan. But from then on, the year unfolded a series of retreats and surrenders—the bitterly argued Franco-Thai treaty, the Franco-Japanese agreements in May, the pact of July 22 by which Vichy recognized Tokyo's "protection" over Indo-China and finally Japan's occupation of the southern half of the colony. By August Indo-China was no longer a French colony but a Japanese-dominated puppet state, administered by French officials who could call on no power within or without their borders to reinforce their authority or resist Japanese encroachment.

On January 4 a Vichy decree granted Indo-China "dominion status" and instituted a separate tariff on products from countries outside the French Empire. In spite of much publicity, the new status was not a forward step. It transferred the colony's ultimate control from Parliament—which had a rather liberal tradition in its colonial and native policies—to the new Chief of State, Marshal Pétain, and was therefore a retrogressive step toward dictatorship. Indo-China was also authorized to negotiate trade agreements with other countries, to tax certain imports from France or Algeria—although some of these remained duty free—and to restrict imports by quotas.

Early in February Decoux issued the following four decrees regulating economic activities. They represented an attempt to strengthen the colony and to oppose Japanese encroachment—particularly the clauses which attempted to exclude Japanese from Indo-Chinese commerce. They also implemented the rice agreement made with Japan in January.

(1) On February 2 a Federation of Indo-Chinese Importers was established, composed of ten import associations which grouped all authorized importers according to the products in which they traded. Only Federation members were entitled to import permits and the Governor General had the authority to decide which firms might join the Federation.

(2) On the same date a Rubber Sales Bureau was set up. All sheet

rubber (and other products later specified) had to be delivered to the Bureau which paid a uniform rate and handled all sales.

(3) To implement the January rice agreement with Japan, a further February 2 decree, modified on February 21, set up a *Commission* to supervise the trade and export of paddy, rice and their derivatives. Directing the entire rice market, the Commission was charged with carrying out the terms of Indo-China's rice agreements with Japan and granted lump export quotas for redistribution among the members of the Cereal Exporters Association. All export permits specified quantities, prices and destinations.

(4) Finally, on February 10 it was decreed that no industry or other enterprise could be set up in the colony without the prior consent of the "competent government authority"—i.e. the head of the local government administration whose decision had to be based on the opinion of the local Chamber of Commerce.

Obviously Decoux was trying to check the Japanese advance. All through the long "mediation" of the Thai war there were evidences of determined French opposition to Japan's demands; the delays in settling the economic negotiations in progress since December also indicated a stiffened attitude.

The announcement on April 10 of the new five-year neutrality pact signed by Japan and the U.S.S.R. may have been one of the pressures which moved Vichy to agree to the economic treaties signed in May in the fear that, freed from danger on her right flank, Japan might press even harder on her left. However that may be, these gestures of French resistance were promptly rendered meaningless by the terms of a series of economic agreements signed by France on May 6, after several months of negotiation.

In the first place, trade between Japan and Indo-China was to be roughly balanced, on paper, except for Indo-Chinese rice and rubber exports. Rubber was to be paid for in U. S. dollars, but the entire 1941 rice crop was to go to Japan on a year's credit, while 70 per cent of the 1942 and 55 per cent of the 1943 exports would be sold on a credit basis. The heart of the agreements was an exchange clearing system. All Japanese exports to Indo-China and all Indo-China's exports to Japan except rubber and the deferred portion of the rice exports would enter into this system. Of course, after a year rice exports would also count. The Yokohama Specie Bank was to receive, at its Indo-China branches, piastres needed to pay for goods

purchased for export to Japan, and would give yen credits for similar use in Japan. There was to be a monthly balancing of books, and balances in excess of five million yen or five million piastres would be paid off in gold or a free currency, so far as the Yokohama Specie Bank was concerned. In due course the provision for payment in gold or a free currency was suspended, the piastre was linked to the yen, and the Japanese could import as many raw materials as they could provide shipping for, without too much worry about payment. Only the breakdown of the Indo-Chinese economy, due to inflation or general unwillingness to sell goods for piastres seemed likely to end this happy (for Japan) state of affairs.

The agreements specified that Indo-China would assure the export to Japan of minimum quotas of most of the colony's leading products, and would help the export of additional quantities of these and other commodities. For instance, in 1941 Japan was to receive the total production of manganese, tungsten, antimony, tin and chrome, plus quotas of other products, including:

<i>Commodity</i>	<i>Minimum quota to Japan (metric tons)</i>
Rice	700,000
Coal	800,000
Maize	200,000
Rubber	15,000
Lacquer, natural	1,500
Salt	40,000
Pepper	2,000
Castor oil	1,000

It is interesting to note that in each of the commodities listed the Japanese were to receive a larger quota than they had chosen to purchase in 1940. Thus they were to receive 800,000 tons of coal in 1941, against the purchase of 479,007 tons in 1940. They set up quotas for castor oil, pepper and a number of other commodities which they did not purchase at all in 1940!

In addition to the rice guaranteed to Japan, that country was to receive any unused portion of the 200,000 tons quota allotted to France and the other colonies, plus any export surplus of white rice beyond a total of 1,020,000 tons.

An ominous clause in the treaty was the provision for "periodical conferences to examine outstanding economic questions" since it provided the machinery (of which great use was subsequently made) for fresh demands.

By these agreements the Indo-Chinese economy was made more directly and completely subservient to Japanese needs than was ever the case *vis-à-vis* France. This general economic servitude was paralleled by the forced payment for the Japanese army of occupation and the indirect financing of Japanese purchases of land and businesses, the Bank of Indo-China being forced to put up the funds for these latter operations. After the occupation of southern Indo-China Vichy approved a loan to Japan of 25 million piastres and at this time too it became obvious that Japan had only planned to pay for the first month's rent on requisitioned buildings and living quarters, so the Indo-Chinese government had to settle with the evicted owners. During the early months of the occupation this enabled the Japanese to make a favorable impression on the natives by paying rather well for services and materials, but added to the inflationary trends which were aggravated by the dearth of customary imports.

In return for these "favors" the May economic agreement provided that Japanese imports should receive most-favored-nation treatment and, in some cases, reductions below minimum tariffs or even complete tax exemption. In view of the impossibility for Japan of supplying the requisite quantities of consumption goods to Indo-China while carrying on a war in China and preparations for the general war in the Pacific, these concessions meant little, except a further slight blow to the Indo-Chinese treasury.

The final Franco-Japanese pact, signed on the same day as the economic agreement, was a convention regarding residence and navigation. It provided for reciprocal treatment of nationals and most-favored-nation treatment as regards entry, establishment, ownership of movable and immovable property, conduct of commercial enterprises and taxation. This seemingly innocuous pact marked the substitution of Japanese for French economic control in a very practical way. Japanese were now permitted freely to develop agricultural, mining and other

concerns. They were admitted to the important Federation of Importers and Exporters, and had permission to establish their own schools. Other "secret" clauses stipulated that the personnel, management and capital of all new Japanese firms should be about half Japanese and that Japanese should be free to buy land and buildings in order to facilitate economic collaboration. While French law and practice had not completely eliminated foreign enterprise from Indo-China it had very nearly done so. Thus the new treaties were almost revolutionary in effect. Japanese control of coastal and fishing industries and of communications in general was foreshadowed by other provisions. All such revelations are unimportant since the basic fact is that Japan could, and did, exceed the terms at will. That the Japanese troubled to conduct protracted negotiations at all may be puzzling. In the first place, this public minimizing of the extent of Japan's conquest may have allayed jealousy on the part of the European axis, thus permitting the Nipponese to continue to reap definite advantages from their alliance. Again, French "face" was saved sufficiently to permit much-needed French officials to carry on essential administrative and technical duties. Moreover, the film of legality across Japan's acts may actually have deceived the unreflective, with a corresponding favorable psychological effect in a continent where political understanding was not widespread. Finally, Japan's legal arrangements, like those of Germany in Europe, created legalistic mare's nests for those who will have the unenviable task of straightening out property claims at the peace conference and afterwards. It is likely, however, that Japanese self-assurance was so great that the thought of a peace conference not dominated by themselves did not seriously affect their decisions.

In summary, the first part of 1941 was characterized by French resistance and subsequent submission to increasing Japanese control of their colony's foreign relations, foreign trade and domestic affairs generally. Internally, the colony instituted sterner measures of regimentation, partly to force trade into the new channels dictated by Japan, partly to put a brake on the inflation which was evident in sharply rising living costs, and partly to help shift the economy from depend-

ence on imports of petroleum and a number of other commodities to at least a small degree of self-sufficiency. In this field expanded production of rice alcohol and of peanut and other oils to replace gasoline and other petroleum products was paralleled by government-sponsored studies of other local resources. Trade in general increased during the first half year, benefiting from the cessation of hostilities in France and on the Thai border, and from increased demand from Japanese markets. But the gradual shrinkage of other outlets (by early fall, American, British, Dominion and Netherlands Indies markets were all closing down), the freezing of credits abroad together with the credit-barter arrangements entered into with Japan and the fact that Japan was supplying little in the form of machinery, petroleum products or consumption goods—meant that Indo-China's economy was almost entirely dependent upon Japan, and that the arrangement would have serious disadvantages.

With the colony thus politically and economically isolated from France and tied to Japan, by mid-1941 neither Decoux nor his nominal masters in Vichy could be expected to influence the course of events, in the face of continued Japanese pressure, in support of Nippon's carefully prepared program for Indo-China.

In June Germany attacked the U.S.S.R., and, together with Hitler, most of the non-Russian world expected the Soviets to crumble. For a time Japan's predicament resembled that of the proverbial ass between two equally attractive bales of hay. An attack on Russia offered a chance to eliminate the strongest outside influence in the Far East. But in that event, Germany would practically dominate the world, and it behooved Japan to lay a firm hold on as much as possible of the riches of Southeast Asia before the *drang nach osten* brought the Nazis to the gates of India. So, while Japan weighed the advantages of striking north or south, she kept the western and colonial worlds in a state of nervous jitters by emphasizing her own quandary.

As early as June the American-owned supplies which had been marooned in Haiphong when the Yunnan Railway was closed were seized. In July Japanese shipping to the U.S.A.

was curtailed. Soon the Japanese discovered that they were "encircled" by the U.S.S.R., Great Britain and the United States (not to mention Free China and the Netherlands Indies), that the British were rearming Malaya and Burma to menace Nippon and were trying to dominate Thai economy, that the Free French, the British and the sinister Chinese were plotting to seize Indo-China and that animosity in Indo-China itself was oppressing the pro-Japanese Annamites. This was too much; Japan appealed for redress to Vichy.

On July 23 Tokyo announced another agreement "in principle," with Vichy whereby Japanese military forces were to occupy southern Indo-China as a temporary measure to protect it from falling under joint British-de Gaullist domination. That the negotiation of the agreement was a farce was proved by reports the very next day that thirty troopships were moving south from Hainan, and on July 29 a fighting army was landing, completely equipped with everything from food to telephones. Roads in southern Indo-China were cleared of all but military traffic to enable the Japanese to occupy the country expeditiously.

Under the reported terms of the accord on "the common defense of Indo-China," Japan was entitled to station garrisons at Siemreap and Pnom Penh in Cambodia, and at Baria, Mytho and Ha Tien along Cochin China's coast and rivers, plus air bases at the first two towns as well as at Tourane, Nha Trang, Kompong Trach, Bien Hoa, Soc Trang and Tansonhut. The chief prize, however, was Cam Ranh Bay where, although the French had been forced, by previous Japanese "requests" to suspend operations before much was accomplished, the latter promptly concentrated men and equipment and excluded all visitors. In six weeks the occupation was complete and Japanese were on the Thai border in early August, facing *Thai troops* who had established themselves in the supposedly demilitarized areas of Cambodia acquired from Indo-China the previous winter.

Decoux barred all exports except to Japan, after having tried unsuccessfully to re-establish trade with Singapore and Hongkoug. (The German Armistice Commission at Weisbaden had fined the French for sending the S. S. *Maréchal Joffre* to

Singapore.) Japanese economic penetration was following the pattern set in Tonkin the previous year; Japanese experts were everywhere, buying up available cotton stocks, negotiating for large purchases of lands for rice, cotton and cereal plantations, listing rubber trees and machinery. Should the result of their investigations ever be published, it should add much to present unsatisfactory Indo-Chinese economic statistics!

Establishment of complete military control was followed by reorganization of political and economic relations with the new puppet state. Complaints about "anti-Japanese" activities usually induced the French administration to "cooperate." The farce of Indo-China's dominion status, as a part of the French Empire, was continued, and Mr. Yoshizawa, who had failed in his important mission to the Netherlands Indies and wished to succeed in a new task, was appointed "Ambassador." Early in October a special Japanese mission was formed to accompany him and his military and diplomatic staff and to study Indo-China's undeveloped resources with a view to Japanese exploitation.

The occupation was not without cost, however, even to Japan, for Indo-Chinese funds and credits were frozen by the United States and the British Empire countries, while the United States and Great Britain held up the shipment of materials, some of which the Japanese would have been able to use with advantage. The advantages, however, far outweighed the costs. The French officials were equipped to do a job in colonial administration which the Japanese could have learned only after a painful apprenticeship. Moreover, the Japanese never received full blame for being the country's conquerors. The French took the onus for some unpleasant acts. On the other hand, the Japanese did not hesitate to control the French officials. For instance, in September 1941 Japanese troops arrested some hundred Chinese and Annamites despite French protests about this "violation of French sovereignty." In November, after rumors had the Japanese about to take over the administration, Decoux announced a reorganization "to conform with developments in France." Already, when he first arrived in the colony, he had replaced a number

of officials by young naval men, and during 1940 and 1941, further groups of officials with Free French leanings were removed or resigned, including several men of high rank. In this very economical manner the Japanese kept a complicated colonial structure functioning with reasonable efficiency.

A great many things happened in Indo-China during the summer and fall of 1941:—Japanese maneuvers in Cambodia, the resurgence of the Thai border problems, censorship of news of Japanese troop movements, complaints of anti-Japanese activity, arrests of Frenchmen who tried to leave the country to join de Gaulle, the reorganization of the administration of the colony and the resulting resignation of anti-Vichy officials, a spreading Japanese tide in industry, agriculture and commerce, the appointment of a Japanese ambassador to the puppet state, prohibition of exports to countries other than Japan, the stiffening censorship of communications abroad and of expression at home, enormous movements of Japanese troops, Chinese threats to invade Tonkin in case of Japanese attacks on Yunnan, continual rumors of new Japanese demands for additional facilities, for control of air transport—but from now on these developments must be framed in the world picture: the Russo-German war (June 1941), the Atlantic Charter (August 1941), Japan's negotiations with the United States (beginning in September) and Japan's own consistent purpose—the domination of Asia.

In contrast to the floods of news about Indo-China which had poured out during most of 1941 the latter months of the year provided little but rumors. Both Japanese censors and censors of neighboring countries became stricter as war became imminent. The most important development was the Japanese-American talks with reference to the whole Pacific picture—talks which were clouded in secrecy and which grew more ominous every week. Knowing as we do now that the Hull-Kurusu conversations were a ruse, and that the orderly planning evidenced in the swift occupation of southern Indo-China was a rehearsal for the attacks on Pearl Harbor, Manila and Hongkong, it is best now to view Japan's acts in Indo-China as a preparation for the war in Southeast Asia as a whole.

Hainan had become too small to be Japan's advanced base, and during the summer troops poured thence and from Japan proper into Indo-China. Japanese collaboration with the Thai in the border war, and the maneuvers near Saigon in October and near Siemreap in mid-November were excellent preparation for the troops which took over Thailand in a day or two in December, and then continued down the Peninsula to Singapore.

Meanwhile Indo-China was an outstanding point at issue between the negotiators in Washington. On December 2 President Roosevelt asked the purpose of Japan's presence in the colony, rejecting in advance the obvious reply—police measures. That rhetorical question could be answered only by retreat, or by action.

Apparently prepared before the outbreak of war on December 8 (Indo-China time) yet another Franco-Japanese pact was announced on December 10. Taking into account French sovereignty, the purpose of the new treaty was to "adapt conditions of Indo-China's defense to the new situation." Behind the "face" which Japan permitted Vichy to retain by this subterfuge, the pact merely legalized the further military steps which warfare necessitated on Japan's part. Vichy bestowed on Decoux the empty title of French High Commissioner in the Pacific, and the year closed with the colony's providing strategic bases, rice, coal and other raw materials for Japan's well-laid schemes in Southeast Asia.

Developments During 1942-43

The few sources of news about Indo-China which remained at the outbreak of the Pacific war were stopped after that event. Radio propaganda broadcasts—all aimed at a particular objective rather than the portrayal of facts, gave some inkling of what was going on, and the return of Americans from internment in Indo-China provided a little more news—but not enough. The following summary is therefore very incomplete and tentative.

Political and Administrative Developments. There were no basic changes in the administration during 1942. Nominally the French remained in control and all administrative posts

were filled by Frenchmen, although those with viewpoints which made them unacceptable to the Japanese were arrested, resigned or succeeded in escaping.

The administrative reforms initiated by Decoux in November 1941 were elaborated in a law of September 1942 and a decree on November 22. They amalgamated the Indo-Chinese civil service, the administrative personnel of the Colonial Department and the administrators of the several colonies of the Indo-Chinese Union into a single corps. The purpose of the reorganization was probably in part economy and efficiency as well as to reinforce whatever strength Decoux had as Vichy's representative. Moreover, it was a convenient means of ousting men with Free French leanings (in fact, some 150 officials promptly resigned) and, by giving the natives theoretically at least civil service status with Frenchmen, was a bid for the Annamite support which the Japanese "cultural" missions also aimed to secure.

About June 1, 1943, there appears to have been set up a "Federal Council of French Indo-China" to carry on the work of the advisory "Grand Conseil Des Intérêts Economiques et Financiers", which ceased to function after the fall of France. Noteworthy in the make-up of this new body is the reported ratio of 30 Annamites to 22 Frenchmen. The body will discuss matters dealing with fiscal and economic affairs, say Japanese propaganda broadcasts.

Japanese "advisers" assisted all departments of the Government General, and the Japanese military gendarmerie was wholly independent, acting in both political and commercial matters. French control of their own police and courts was maintained by impressing the Japanese with the severity of law enforcement and especially of the penalties imposed on Europeans. Japan's long-term plans in respect to administration and social evolution are revealed in the numerous measures to promote study and use of the Japanese language, in special schools as well as in the regular education system. A South Seas Institute was inaugurated at Saigon for the training of young Japanese for future duties as colonial administrators.

In other words, Indo-China has two masters—the legal French administration and the Japanese Ambassador and

his staff. Competition between the two for the support of the natives, particularly the 17 million Annamites who comprise about three-fourths of the population, has given the latter group a new and more important role. The Japanese have attempted to win them over with Japanese language schools, student and professorial exchanges, an illustrated weekly, athletic competitions, two great fairs at Hanoi and Saigon, emphasis on an alleged common religious heritage, exchanges of art exhibits, the suggested elimination of French language study from Indo-Chinese schools and a host of other measures. These schemes, by elevating the Annamite in comparison with the Frenchman, appealed to deep-seated and important springs of action, and may prove to be both important and lasting in their effects. Even though the Annamites have less real control in their own land now than before, their vanity has been tickled in many ways; they have been given more important places in the government, and the French have been more considerate than ever. Even though it is more the semblance than the substance of power which has accompanied this new prestige, recent developments may result in a new outlook on the part of the Annamite élite which will make the restoration of the old type of French imperialism infeasible. Japanese policy *vis-à-vis* the Annamite coolie has been much less likely to make friends for Japan. The Japanese appear to have alienated the coolies by paying inadequate wages after the first few months of high wages. Japanese soldiers and others frequently walked off without paying their ricksha coolies. Since both the army and the numerous newly-established Japanese firms must employ considerable numbers of coolies, Japanese wage policy may be an important factor in determining the Annamite view of the conquerors.

In apparent contradiction to the policy of humiliating the French in the eyes of the Annamites, the Japanese have explained to the French via the radio that it is only by the closest Franco-Japanese collaboration that the Anglo-Saxon menace may be destroyed and the greatness of France restored. Moreover, the Japanese exchanged rather unimportant archaeological specimens from Japanese museums for examples of Indo-Chinese art collected in the French colonial museums,

a type of artistic looting similar to that of Napoleon and of Hitler. The Japanese "mediators" of the Thai-Indo-Chinese war probably had French scholarship in mind when they drew the new boundary line in such a manner as to exclude the great ruins of Angkor Wat from the territory ceded to Thailand. This exclusion is the more remarkable in view of the fact that the greater part of Siemreap province, taken from Thailand in 1907, was returned to Thailand in 1941.

When the French had undisputed control of Indo-China they did not trouble to court native support. In spite of (or perhaps because of) their obvious loss of prestige and possible Japanese opposition, the French have apparently done surprisingly well in counteracting the Japanese propaganda campaign aimed at the Annamites. Since they continued nominally in charge of the government they received the credit, in the eyes of the unsophisticated majority for inaugurating a cadet corps, greater Annamite representation in the civil service, and particularly the opening of higher posts to Annamites. Other French activities were youth movements, movies, heavier penalties on French offenders brought before the courts, French shares in the Saigon and Hanoi fairs and radio propaganda. Great enthusiasm was engendered, for instance, by a bicycle torch race from Cambodia to Hanoi—the youthful contestants carrying torches in relays. Among the administrative reforms may be mentioned the greater stress on the knowledge of the Annamite language and its use by French officials.

The officiousness of the Japanese may prove to have been as effective as direct French efforts in producing rapprochement between French and Annamites. The latter have a basically Chinese language and culture, and are not easily misled by Japanese claims of kinship. Many Annamites of the upper classes have heard of the practical effects of Japanese "liberation" in lands already occupied by the Japanese—and such observation would at least cause them to prefer the French as the lesser of two evils, if for no other reason.

Although the meager information now available suggests that the great majority of the French population and most of the minor officials are by now in sympathy with the French National Committee in Algiers, the censorship and control

by Decoux and his senior administrators is so complete that there has been little overt opposition to the regime. Thus there was little expressed opposition to the repeated pledges of loyalty to Pétain promulgated by Decoux in November and December 1942 when Darlan went over to the United Nations. Some more papers were suppressed and additional officials arrested as de Gaullists, but that appears to have been all.

If little is known of the changes in French opinion in the colony, even less news has come from the much larger Chinese population. The Chinese consul at Saigon received many threats prior to the outbreak of war in the Pacific, and on December 8, 1941, he was in a barricaded house in a hill station, while junior members of the consulate appeared for business in Saigon. It is not known whether or not the consul and staff escaped. Probably a few of the pro-Chungking Chinese who fled to Indo-China after Japan's occupation of Canton may have moved on to Free China when their temporary refuge was overrun in its turn. There is, however, no evidence of any large-scale exodus, and the fact that most Chinese lived in the southern sections of the country suggests that most of them stayed where they were. Pro-Nanking sentiment was an immediate objective of Japanese propaganda, and a Nanking Trade Commission was soon established. Some prominent Chinese were soon found to take a lead in "cooperation." There was a little evidence of Anti-Japanese activity among the Chinese—Cholon rice merchants delaying shipments whose ultimate destination was Japan—but such activities appear to have been rare.

Military Developments. The military position in Indo-China is, quite naturally, so heavily censored that American civilians know very little about it. Japanese troops are thought to have numbered 125,000 to 150,000 at the beginning of 1942. Within a month or two most of them had proceeded to the conquest of Malaya, Burma and the Netherlands Indies, leaving perhaps 20,000 as the Indo-China garrison or group under training in that country. Doubtless the reduction of the size of Japanese garrisons received some of the inflationary pressure on the country's economy, helping smooth the irritations normal among a conquered people.

The French forces are apparently still demobilized. In mid-1941 the total of French forces, including native troops, was estimated at 40,000 to 100,000 men, with very inadequate equipment, including fifteen Morane pursuit planes. There have been recent unverified reports of the recruiting of native troops for South Seas service and for home defense. The French naval force, insignificant except for one cruiser, appears to have been untouched by the Japanese, and flew its flags at half mast at the time of the Toulon scuttling.

The main tides of battle rapidly departed from Indo-Chinese shores in December 1941, and the only actual fighting taking place in or near the colony has been occasional American air raids on Haiphong, Lao Kay, Hongay and other strategic centers in Tonkin, and the action of American submarines in the waters adjacent to Indo-China.

Economic Developments. The Japanese occupation imposed great immediate fiscal burdens on the Indo-Chinese government. One-fourth of the receipts normally came from customs' duties, and this revenue practically ceased to exist. On the other hand, the Bank of Indo-China was forced, according to the financial agreement described above, to advance piastres to enable the Japanese to purchase great quantities of raw materials in Indo-China. Naturally the government was the ultimate source of this unlimited credit. Japanese occupation costs, rental of French-owned buildings taken over by the Japanese and the salaries of numerous Japanese "advisers" added greatly to the government's expenditures. A number of new loans were reported, note circulation went up steadily and, as one more mark of Japan's absorption of the country, the piastre was tied to the yen, toward the end of 1942, at the rate of 97.60 yen to 100 piastres.

With imports from Europe and America cut off and with Japan failing to send sufficient quantities of chemicals and manufactured goods, as promised under the economic treaties of 1940 and 1941, the colony experienced the inevitable pangs of inflation and black markets. The small quantities of toys and paper goods sent by the Japanese were not very helpful. The large Tonkin textile industry apparently had sufficient yarn on hand to last through 1942 with few imports, but

unless rumored barter deals with North China were consummated on a large scale—and there is no evidence of such consummation—there has been a fairly severe textile shortage, particularly in Tonkin and the mountain areas where the cold is often sufficient to make the wearing of clothes important for health as well as esthetic reasons. Meanwhile there is considerable experimentation with kapok and several other fibres. Prior to French occupation there was little or no import of textiles and small plots of cotton, throughout the country, fed domestic spinning wheels and handlooms. There may now be a widespread return to such activities, for imports of Japanese textiles are quite insufficient.

Paper, tobacco and petroleum shortages are fairly acute, and numerous counter-measures have been taken to meet the shortage of motor fuel and lubricants. The large rice alcohol production has been further increased, most of the output being used in lieu of imported petrol. Fish oil is used, presumably as a substitute for diesel oil. Castor oil is produced in large quantities as a lubricant, and peanut and coconut oils are believed to be used for the same purpose. In addition, there is apparently an increase in the use of charcoal and similar fuels for driving motor vehicles. There are drastic restrictions as to ownership and use of trucks and buses in particular.

Confidential figures indicate a considerable increase in production of electricity—in itself a hint of increasing industrialization. On the other hand, there have been a number of United Nations' raids on power plants at Haiphong, Hongay and other points, according to published reports, so the previous gains in power production may have been nullified. There have been many references to increased production of teak and other timbers, presumably as a reflection of the wooden shipbuilding program.

Agricultural production, although hindered by floods in Tonkin and elsewhere, appears to have been at least normal since the Japanese occupied the country. In fact, one French authority estimates the exportable surplus for 1942-43 as 1,750,000 metric tons. Since Indo-China is much closer to Japan and the other rice-deficit areas than are Thailand and Burma, the other two chief rice exporters, it is to be expected that most

or all of the surplus rice will be actually exported—a condition not occurring in the two competing countries. Great irrigation projects in Cambodia will probably contribute to the maintenance of the export position. Maize production appears to be continuing at a level of over 300,000 tons per annum, most of which is exported to Japan, Korea, etc.

The absence of Indian imports of jute appears to have been keenly felt, judging by frequent Japanese propaganda broadcasts telling of efforts to increase the production of this crop and to find other materials suitable for bagging the large rice export. There have been reports from other sources of spoilage of rice due to lack of adequate storage facilities, and lack of jute bags may have been a factor in this situation. Flax is one substitute material whose production is being stimulated, but the results of the experiment are not known.

Paper production was formerly only one-fourth of requirements, and it is thought that Japanese imports and added local production have to be supplemented by drastic curtailment of paper consumption.

Although Indo-China was completely in Japan's power, and carried on practically no trade whatsoever except through branches of Mitsui, Mitsubishi, Ataka and other Japanese trading firms, the paramount power took the trouble to negotiate other agreements in July and August 1942, and Tokyo promised to send Japanese socks, underwear, toothpaste, toothbrushes, neckwear, cotton goods and cameras in exchange for the rice, coal, timber, phosphates and other products of Indo-China. It is almost certain that Japanese supplies were quite inadequate to satisfy civilian demands in any important category.

Indo-China has suffered inflation, as have most other countries of the world in the past four years. Even the price of rice appears to have increased, in spite of a sufficient supply. The answer may probably be found in the general inflation of the currency, as great additional quantities are issued (presumably "loaned" to the Japanese) to pay for the forced exports. Sugar, matches and a number of other commodities are rationed, and General Decoux has complained about Japanese failure to supply pharmaceuticals as agreed.

An apparent exception to the rule that Indo-Chinese trade is all in Japanese hands is represented by the smuggling trade with China, particularly with Yunnan. Consumer goods are even scarcer in Free China than in Indo-China, and there appears to be a considerable trade in Yunnanese raw materials on the one hand, against consumer goods on the other. The authorities on both sides are said to wink at the trade.

The 1942 agreements provided that there should be equal Japanese and Indo-Chinese membership in the Indo-China Commercial Register, and after October 10, 1942, membership in the corresponding association was made compulsory for all engaged in commerce. The August agreement gave the Japanese a monopoly of the export of jute, phosphorus, zinc and some minor commodities. Finally, pacts were signed in January and March 1943, fixing quotas for rice, maize, lumber and other products. The quota for coal was apparently lowered, due presumably to more urgent need on the part of Japan for other commodities, coupled with the severe shipping situation. The rice quota was said to have been one million tons, or two-thirds of the pre-war export. Present indications are that great quantities of rice are gathered at Saigon, and the only real difficulty facing the Japanese is the building of enough small ships to export the available surplus. The toll upon the regular Japanese merchant fleet, taken chiefly by American submarines, appears to have been so great that in some cases new warehouses are reportedly built at the main ports to accommodate the accumulation of exports.

Considerable numbers of French firms formerly engaged in the retail distribution of imports from France. At present the great Japanese firms have not only established a virtual monopoly of foreign trade but are believed to have pushed into the retail trade in imports, as well, leaving local French merchants in a hopeless position.

There have been numerous reports of food shortages in Tonkin recently, and of schemes for large-scale emigration from that overpopulated province to southern Indo-China. Both reports are entirely credible, and do not necessarily reflect an inability to export rice in approximately normal quantities, since practically all the rice export has always been from Cochinchina.

China and Cambodia. The Tonkinese have been migrating south, in small numbers, for many years, but never fast enough to relieve the pressure on the soil in the Tonkin Delta, approaching 3500 persons per square mile in some of the most fertile farming areas, according to a painstaking survey of M. Gourou. The Japanese appear to be shipping considerable numbers of Tonkinese to the south, but it is unlikely that they will keep ahead of the birthrate.

Practically every Japanese-controlled radio has broadcast accounts of *the program of building fleets of small wooden vessels, normally 200 to 400 tons displacement, in ports scattered throughout the Japanese-occupied area.* Saigon appears to be a chief center of such activity, with master shipwrights imported from Hongkong and Canton. Certainly the Mekong could be used to bring large quantities of timber, including some teak, to the Saigon area. Although several such ships have reportedly been launched, it is doubted if enough are in operation to solve the Japanese shipping problem. Timber export to Hongkong and Japan is reportedly on the increase.

Problems of land transport have been attacked with greater apparent success. The short gap between the Thai Railways at Aranya and the Pnom Penh-Mongkolborey line was closed at about the *time of the outbreak of war in the Pacific.* There have been reports of the building of a line to link Saigon with Pnom Penh, but the Saigon and Mekong Rivers, with their connecting canal system, provide a relatively satisfactory means of transport, and latest reports indicate that the Japanese have abandoned this project, and have broadcast the *claim that they are building a line across the center of Indo-China, to link up with the Thai railways on the Korat Plateau.* Such a line would undoubtedly shorten the rail journey between Hanoi and Bangkok by hundreds of miles, compared with the route via Saigon. However, it would require considerable time and vast expenditures of men and materials to build such a line across the Annamite Chain, and Saigon, Indo-China's outstanding port, would still be without direct rail connections with Bangkok. It seems possible that the announcement of the new scheme was designed to

cover up the failure to build the Pnom Penh-Saigon link, and little more. In 1943 there have been a few published reports of American bomber raids on railway objectives in Indo-China, but the reports do not suggest damage sufficient to impair seriously the usefulness of the railway system. The truncated Haiphong-Lao Kay line is particularly important for the export of the large Lao Kay phosphate production, and the most successful bombing raid of all appears to have been that against the phosphate mines.

The Japanese have occasionally boasted of a "Tokyo to Singapore Railway" (with appropriate ferry service from Japan to Korea) and the branch line from Hanoi to the border at Langson would be part of such a scheme. However, there is no present indication that they will effectively occupy the South China areas involved, much less build the hundreds of miles of railways still lacking in China. In the apparently unlikely event that the Japanese ever do complete the China part of such a grandiose plan, they will probably find it a relatively easy matter to make one of the two projected links with the Thai Railways. There are through rail connections from Thailand to Singapore, and it is possible that the Japanese have by now made good their boast that they would complete the Burma-Thailand railway, via Kanchanaburi, in 1943. In that case, completion of the link in Indo-China would connect that country with Rangoon as well as Singapore.

The French had provided a road network for Indo-China which was one of the finest in East Asia. The Japanese have carried on this work, and recently celebrated, with much fanfare, the completion of a 1600 meter highway between Saigon and Luang Prabang, far up the Mekong toward the northwest corner of the country. They did not mention the fact that the French had already completed most of the road prior to 1941. There have been improvements in other roads connecting Route No. 1, along the eastern seacoast, with Vientiane and other Mekong ports. The Japanese also claim to have constructed additional roads for the exploitation of forest resources, but details are unknown.

Finally, the Japanese have reportedly improved the French system of air-fields, and Saigon is said to have an excellent

airdrome. It would not be surprising should the end of the war find the country possessed of military air-fields far beyond any conceivable use for civilian aviation. The French carried out large irrigation projects in Cambodia, Cochin China and Tonkin, and radio propaganda now claims a great new achievement in Cambodia for the Japanese. Rice, maize and peanuts are to be raised on the land to be irrigated.

The Japanese occupation does not seem to have had an adverse effect on the production of rice and rubber—in fact there is doubt whether they can transport the exportable surplus of these commodities. Coal production appears to have declined considerably, because of a lack of shipping space. An even greater reduction in iron ore production appears to have taken place, but phosphate production has increased greatly at Lao Kay—sufficient to call for an American bombing attack in a locality where there was no previous commercial production. Enormous beds of phosphate are available at Lao Kay. Production of zinc and tin appears to have been maintained, while shipment of chrome and bauxite, formerly not produced in important quantities, now seem to be attaining sizeable proportions.

Early in April 1943 the Tokyo radio reported that the Japanese economic experts who had been busy surveying Indo-China's resources since May 1941 had completed their work and disbanded at the end of March 1943. Apparently by that time the Japanese felt that they knew all they needed to know about Indo-Chinese economy!

Possible Effects of Japanese Control. Undoubtedly Indo-China is not escaping the economic disadvantages of war—inflation, chaotic finance, monopolistic exploitation by a foreign nation, inadequate facilities for export, inadequate supply of imports, closure of some industries not considered essential, and grave injustice to former businessmen and industrialists. Moreover, there is at least a possibility that considerable fighting will take place in Indo-China before the war ends, and that a large part of the factories and other modern developments will be damaged or destroyed.

It is difficult to believe that any amount of Japanese railway and road-building, development of mineral resources, etc.,

can compensate these great losses. However, Professor Robequain pointed out in the foregoing pages the unbalanced nature of the colony's development—with too great emphasis placed on coordination with French economy. Trade and industry were largely monopolistic and both were developed as much in order to meet the demands of French capital as to produce a well-balanced growth of the colony. Thus effective barriers were placed in the way of trading relationships with neighboring areas, and Indo-China was unable to take its proper place in the economy of the Pacific area.

Hence Indo-China's temporary role as an integrated part of Japan's swollen empire will at least tend to harmonize her economy with that of other parts of Greater East Asia, although it cuts the colony off from other contacts with countries best able to use the export surplus of rubber, benzoin, derris root, tin and tungsten. The growing production of phosphates, chrome, jute, cotton and ramie may prove healthy additions to the economy. The building of new roads to and through undeveloped Laos (whose statistics were frequently excluded from country-wide totals in the *Annuaire Statistique*) will certainly prove a permanent gain. The Japanese inventoried the commercial and natural resources of the country in 1940 and 1941 and have since poured men, money and ideas into the wake of their armies. While their motives were entirely selfish, and they only incidentally aimed at improving Indo-China's economy, some of the developments which they sponsored may prove of lasting advantage.

At least part of the result of the Japanese occupation, however deplorable the purpose and methods, has been a broadening of the industrial picture and a breakdown of some of its monopolistic characteristics. Thus while many, if not most, of the Japanese enterprises and policies will be erased and forgotten as soon as possible after the present conquerors of Indo-China are driven out, one result of the war may be a more well-rounded and better integrated economy, fitting more efficiently into the trade and economic development of the western Pacific.

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