CHAPTER III

THE AMAZON VALLEY

The possession of the great Amazon Valley confers upon Brazil a topographical distinction possessed by no other nation in Latin America: except that Peru, Bolivia and other adjoining republics share it to a less extent. The Amazon is the largest river in the world flowing from its most remote source to the sea for 4,000 miles, and possessing innumerable navigable tributaries in addition. In some respects this giant stream is the most interesting and mysterious upon the globe, both as concerns its history and its topography.

The tributaries of the Amazon have their rise in the perpetual snow cap of the Andes, above the high tablelands and valleys of Peru and Bolivia, which were the seat of a civilisation as old perhaps as those of Mesopotamia and the Nile—the ancient empire of the Incas and the still older cultures of their predecessors, the ruins of whose buildings are still encountered in profusion upon headland and hill. Flowing thence through a series of mighty cañons, forming the most rugged and least-known country on the face of the globe, the affluents of the Amazon traverse for thousands of miles the dense forests which clothe the heart of South America, and form one great waterway, navigable for transatlantic steamers for nearly 3,000 miles from the mouth; with a delta larger than that of the Nile and the Ganges combined. The basin or valley of the Amazon, including the broad region forming the Amazon watershed, embraces portions of six of the South American republics—Brazil, Peru, Bolivia, Colombia, Ecuador and Venezuela—and constitutes one of the most backward regions of the globe. The area
comprised is equal to four-tenths of the entire area of South America. Yet less than a hundred square miles of this enormous region are under cultivation, whilst its total population, including the Indians of the forests, does not exceed three quarters of a million souls. During the end of the nineteenth and first decade of the twentieth centuries these Indians have been greatly reduced in number, partly by the methods of the rubber merchants, whole tribes having been sacrificed under the system of forced labour: partly due to tropical diseases and vices learned from the white man.

Ever since the time of Orellana, the lieutenant of Pizarro, who in 1540 descended the Amazon from Ecuador, and Pedro de Texiera, who ascended it in 1639, and who were the first white men to do so, the Amazon has hung back in its economic development. Even at the present time, along the great tributary streams—themselves rivers of thousands of miles in length—great distance may be traversed without encountering a single native. But this was not always so, and the depopulation is due partly to the acts of the early Portuguese colonists and authorities: for, during the three centuries of Portuguese domination of the valley of the Amazon, the huge region was closed to the commercial world, and within this close period the primitive, docile native population was enslaved, abused and destroyed, with no mitigating circumstances attending this ruthless domination except that of the devotion of the Jesuit fathers. The destruction wrought by Spaniards among the natives of the Mexican and Peruvian uplands was duplicated by the Portuguese among the inhabitants of the Amazonian forests, and the effect of their ravages remain to this day. What those ruthless Conquistadores left undone is being accomplished by the rubber gatherers and merchants, especially in Peru, and by hardship and disease.

The remotest sources of the Amazon are in the Peruvian Andes, upon the upper Marañon, whose origin lies slightly beyond lake Lauricocha, and upon the Ucayali, the birthplace of whose affluent, the Apurimac, is near Caylloma. The numerous smaller tributaries which unite to form the
great tributaries of the Amazon rise at elevations of 14,000 to 16,000 feet above sea level, and are fed by the permanent snow cap and the constant rain storms of those regions. The Peruvian Amazon tributaries, the Marañon, the Huallaga, the Ucayali and others flow northwardly in a direction roughly parallel with the trend of the Andes for a thousand miles or more before turning eastwardly to cross the Amazon plain through Brazil. At the turning point they are joined by some of the more important tributaries which descend from Ecuador and Colombia. The headwaters of the great Beni and Madre de Dios are in Bolivia and Peru, and these rivers traverse an enormous area of territory, forming the southerly limit of the Amazon basin and falling into the Amazon in Brazil.

Portions of the region traversed by these rivers are among the still savage areas of the earth's surface, and the most difficult to explore. There is still a certain amount of danger from blow-pipe bearing Indians, but the chief obstacles to travel are the broken nature of the country, the impenetrable forests, through which the torrential rivers are almost the only highways, and greatest of all the difficulty of transporting a sufficient quantity of provisions for consumption during the exploration. Mosquitoes and malaria; the heavy rains, and in some cases the unreliability of the native in transport and escort work, are added difficulties. The danger from wild beasts has been greatly exaggerated; the Amazon forests from time to time have been represented as teeming with beasts of prey, but in reality the traveller may pursue his journey day after day and scarcely disturb bird or beast. The most dangerous and troublesome creature in these savage regions is the mosquito and its kindred, it is scarcely an exaggeration to say. Except by actual travel no adequate idea of the Amazon forests can be obtained; of the alternating splendour and gloom of the superabundant vegetations, and the impenetrable walls of foliage presented by the dense vegetation.

The main stream of the Amazon is navigable for ocean steamers in favourable seasons 3,000 miles from its mouth to its junction with the Huallaga in Peru, and in addition
to the principal course there are many navigable side
channels which run parallel thereto, almost as far as the
confluence with the Yavari. Numerous tributaries are
navigable for steamers of lesser draught, and the total
length of navigable waterways serving the Amazon valley,
throughout Bolivia, Brazil and Peru, is calculable as over
a hundred thousand miles. Iquitos, the eastern capital
of Peru, the terminus of the ocean steamer-line from Europe,
is 2,500 miles from the Atlantic. A British war-vessel a few
years ago ascended the Amazon to Iquitos, displaying the
white ensign for the first time in the very heart of South
America. Some years ago Iquitos became notorious due
to the exposure of the atrocities of the Putumayo, which
river enters the Amazon from the north-west, from Colombia
and Peru. At Tabatinga, the Brazil-Peru frontier, 2,000
miles from the southern mouth of the river below Para, the
Amazon is more than 9,000 feet wide, and the depth of its
channel under normal conditions is 66 feet, with a current
velocity of about 14 miles an hour: figures which serve to
shew the importance of the waterway. Among the larger
tributaries of the Amazon are the Madeira, which rises in
Peru and Bolivia, and flows for 2,000 miles to its confluence
with the Amazon; the Purus, also 2,000 miles long, and the
Jurua, more than 2,000 miles long. The Tocantins—practi-
cally a separate system—and the Araguaya, flowing from the
south across Brazil, are each over 1,600 miles long; whilst
the Tapajos, the Xingu, the Japura, the Guapore, the Rio
Negro, the Ica or Putumayo, measure, in the order of their
enumeration, from 1,200 down to 900 miles in length. The
Peruvian Amazon is elsewhere described.

The Amazon forest extends from the Atlantic ocean back
to the Andes for more than 2,500 miles, but its width varies
greatly, being perhaps 200 miles wide on the coast and about
900 miles wide between the plains of Venezuela on the north
and those of Bolivia on the south, upon the slopes of the
Andes. The marvellously rich flora of the Amazon region
is classed among the wonders of the world. As regards
animal life, the Manati, or sea-cow, which inhabits the lower
Amazon, sometimes reaching 15 or 20 feet in length, is among
the most remarkable mammals in the world. Fifty species of monkeys are encountered, and the sloth, the tapir, the peccary, and the jaguar are well-known denizens. The flooded areas of forest are highly favourable for the development of reptiles, chief among which is the alligator, and some of the species are dangerous and voracious. Turtles are so numerous that the eggs and flesh of these reptiles have always furnished food for the Indian tribes. The enormous size of the boa constrictor renders this reptile one of the most remarkable of the Amazon valley. The numerous species of birds provide many of the most brilliant plumage, but they are generally poor in good songsters.

The average rainfall of the Amazon valley has been estimated at nearly 79 inches. The maximum rise of the annual flood is 45 feet; two floods occurring annually, one in November and December and one from March to June; the latter the main flood, which finally subsides in October. The short dry season on the upper Amazon is in January and February, and in May a brief cold period is experienced.

The principal characteristics of the forests of the Amazon valley, apart from their enormous extent, is the great variety of genera and species. In the temperate zones of North America and Europe forests of a single species, or of three or four species, prevail, but in the enormous jungle of the Amazon, which embodies the largest virgin area of woods upon the earth’s surface at the present time, the solitary habit of growth is shewn by the fact that a single acre of ground may contain hundreds of different species of tree and shrub life, including palms, acacias, myrtles, mimosas and others. This condition is a drawback to a profitable lumber trade, although profits may be made out of individual kinds. The vegetation differs between the lower river-margins, which are flooded at regular intervals, and the higher ground, as well as between the Amazon and its tributaries. The lianas, which overgrow even the tallest trees, greatly increase the density of the forest. The trees are not necessarily of great height in the Amazon valley, some species reaching only 200 feet, whilst the general height is but half that, especially in the plains subject to the annual floods.
The largest is the "cow-tree" or Massaranduba, so named from its abundance of milky sap. The timber of this tree is valuable for shipbuilding, and the latex or milk is of value in rubber curing, and is also exported for medicinal purposes. Cabinet woods are not very abundantly exported, taking into consideration the capabilities of the huge forests; and this is due largely to the cost of timber transport on the coast.

The general characteristic of most of the Amazonian timber is an extreme hardness, some of the woods being more like metal than vegetable fibre, and the hard and often extremely beautiful woods of northern Brazil are mainly of use to the constructor of railways and the cabinet maker.* For railway sleepers some of the local timbers are admirably suited, notably the "cow tree;" and in the construction of the Madeira-Mamoré railway, sleepers of this wood have been used. This wood displays considerable power of resistance, whether exposed or half exposed to air and weather. Many of the local woods are suitable for pile driving and boat building, and for ordinary furniture and household fittings the local "cedar" wood is excellent, being light but strong and susceptible of a very high polish. The Amazon cedar tree grows to an immense height. One of the floating trees of this wood, picked up in the river, measured 93 feet from the swell of the root to the first branch, and at this point, which would have been about 8 feet from the ground had the tree been standing, the girth was 19 feet. The town of Itacoatiara, lying opposite the mouth of the Madeira, is the centre of the cedar supply in the state of Amazonas, and there are several large sawmills there.

The export of Brazil nuts at times is second in value only to that of rubber from Pará and Amazonas. The ordinary nut, the Bertholetia, develops inside a hard shell, twenty or more nuts being almost hermetically sealed within, forming a strong weighty capsule, which when fallen the natives split open. The tree grows on open ground, and is one of the loftiest trees of the Amazon forest, growing to an immense height, and of three or four

* Foreign Office report (Casement), 1908.
feet in diameter. The collection of the nuts is at times dangerous, as the heavy capsules are as hard as iron, difficult to saw with the sharpest instrument, and equal in weight to a small cannon ball, and the gatherer does not generally venture beneath the tree when the wind blows for fear of the projectiles falling upon him from the great height, but waits until they are fallen. The Sapucaya, the other variety, has its capsule furnished with a species of lid, which opens and the nuts are scattered in all directions, being lost in the water or eaten by wild animals. Consequently its value to the gatherer is less, and its price higher in the market. As well known, the nuts themselves have a very hard shell, even inside their iron-like outer shell, and the extreme hardness of nature's products, both in these fruit coverings and in the hard woods in the Amazon forest, is a curious circumstance. The Brazil nut tree is a prominent member of the forest, and the collection of the nuts requires little more capital than that involved in the possession of a boat; and the industry might be increased, in view of the high price of the nuts in foreign markets.

The native products of cocoa, nuts, and cattle breeding might be the basis of more important industry. Over a length of 1,600 miles up the Amazon and its main tributaries, cocoa trees are to be seen growing around the huts of the semi-aquatic riverine dwellers, often submerged in the flood of the river, which frequently ruins the plants. Beyond the reach of this periodical overflow the ground often rises in ridges capable of easy cultivation, and were methodical agricultural life existent along the Amazon water-ways, the output of cocoa, and a wealth of other food supplies, would be only a question of organised labour. The methods of production to-day are, however, little in advance of those the early settlers must have adopted from the native. It is only another proof of the natural wealth of the Amazon valley that, despite this apathy and want of system, the output of cocoa should be so considerable. Even in the middle of the last century, when slave labour prevailed, cocoa rivalled rubber as one of the two chief articles of export from Pará.
As regards the cattle industry, the chief source of the local beef supply is the island of Marajó, which lies in the mouth of the Amazon to the north of Pará. A stock of some 300,000 animals is said to exist on the broad, swampy savannahs of this island—a small number when it is considered that Marajó is usually spoken of as “as large as Sicily,” and consists chiefly in grass lands.

The island was, in the early days of Portuguese adventure, inhabited by a numerous Indian population, whose villages and burial sites may still be traced. To-day it is a land of cattle ranching, the ranches diversified by wide lagoons and lakes, connected by many igaripes, or creeks, and filled with innumerable alligators and turtles. The city of Pará consumes annually 20,000 head of cattle, raised within the state limits, besides beef imported from Argentina, and a further 20,000 head of beasts locally raised are annually used in the outlying townships of the state. The cattle-raising districts of the Lower Amazon are all liable to annual inundation in May and June, when the river is at its greatest height, and numbers of beasts are drowned and taken by alligators. The loss due to this cause has been put as high as 90,000 head in a single year (1898), and it is a common sight, when passing a cattle fazenda or estate, to see from the deck of the steamer the cattle standing up to their necks in the water.

Under present conditions the rubber export is the principal industry, coming second in importance to coffee in Brazilian trade, and yielding one-third of the income of the republic. Almost the entire output of rubber is from the uncultivated forest; plantations being few in number. The rubber forests of Brazil are capable of practically inexhaustible supplies, and were all other sources cut off, Brazil would still be able to meet the major portion of the demands of the world’s commerce. Nevertheless, the competition of the newer rubber-producing regions of Malaysia, many of whose plantations are coming into bearing and proving a commercial success, will have their effect upon the wild rubber industry of Brazil. The increased output and easier and more methodical means of collection of the planted
rubber tends to cause a marked decrease in the price of the article; conditions which have been carefully watched by the Brazilian Government, who have grasped the necessity for the improvement of the industry in the Amazon valley. With this purpose in view new measures have been adopted, based upon decrees made in January and April, 1912,* for the protection and development of the forests and the workers; regulations which, if carried into effect, should result in improved conditions. The elaborate clauses of these decrees provide for the construction of light railways, the establishing of new "colonies" and rubber gathering centres, the paying of prizes and premiums for the systematic planting and cultivation of the various kinds of rubber trees, the creation of experimental stations, the subsidising by cash payments of factories for refining and treatment of the crude rubber, the furnishing of carefully selected seeds to planters, the establishing and upkeep of hospitals for the rubber gatherers in the forests, the freeing from import duty of all appliances used in the industry, the creation of centres and plantations for the production of cereals and foodstuffs and of cattle farms, with concessions to companies establishing such, with money grants for cultivation, and the assistance of native or foreign immigrants; and in brief, a scientific and methodical plan for the development of the industry. The varieties of rubber encountered in Brazil which are specially made the subject of cultivation in the decrees are the seringa, caucho, Maniçoba, and Mangabeira. Upon a plantation and semi-plantation basis there is little doubt that far better results are to be attained, but these will be dependent upon the honesty of the administration connected therewith and upon the availability of labour. It further remains to be seen if artificial rubber is to be a competitor in the future.

The city of Manaos was created by the rubber trade, and is the geographical centre of the Amazon valley, as well as the distributing point of its civilisation. It is reached by ocean steamers from Liverpool and New York, and the navigable waterways extend far beyond, to the foot of the

* Brazilian government documents.
Colombian, Bolivian and Peruvian Andes. The city stands near the confluence of the Rio Negro and Amazon. The black waters of the Negro, coming down from the north, for a thousand miles, from the forests of Venezuela, Colombia and Ecuador, mingle with the muddy stream of the Amazon. Below Manaos the great Madeira river enters the Amazon, coming from the south-west. A thousand miles up stream the terminus of the new Madeira-Mamoré railway is reached by ocean steamer.

The Madeira-Mamoré railway has been built to avoid the rapids and cataracts of the river, and will provide a link in a chain of 2,000 miles of navigable water, which principally serves eastern Bolivia and the Brazilian state of Matto Grosso. The earlier obstacle to the construction of this line, which has a terrible history, was principally the climate, and the fever resulting therefrom. Methods of sanitation similar to those employed upon the Panama canal have been largely successful in overcoming the difficulty, and quinine has been perhaps as potent as the engineer. Porto Velho is the lower terminus of the line, 200 miles in length, a fluvial port 2,000 miles from salt water and the head of ocean steamship navigation on the Madeira. Along the bank of this Brazilian town, buried in the jungle in the heart of South America, lie tramp steamers from New York or Liverpool, which, under their own steam, have reached the port, 600 feet above the level of the sea. All around the place the thick curtain of the Amazon forest descends, beyond whose edge is the utterly unknown wilds, whose only tenants are the shy, harmless little Indians, who emerge naked and timid therefrom, and, in still more inaccessible hiding places, some cannibal tribes, whilst the howl of the jaguar resounds through the forest at night. The rapids which the railway is designed to avoid were the source of much danger and loss, even to the large canoes, which laden with rubber descended them from the rubber forests of Bolivia and were frequently wrecked. By means of this line thousands of miles of smaller streams in Bolivia are put in communication with the Amazon to Manaos.

Immediately above Manaos the virgin forest closes in, and
scarcely any sign of activity is apparent over immense distances, with the exception of an occasional hut built out on piles, whose dwellers are rubber gatherers, or wood-cutters who supply fuel for river steamers carrying rubber; and the languid or fever-stricken occupants of these dismal regions draw what small wealth they enjoy from the same source—that of rubber. Other products of the Amazon valley which would yield well to cultivation, under better condition, are cotton, maize and rice, for which there is a demand: also coffee, oranges, mangoes and other kinds of tropical fruits. Whether the original inhabitants of the forests, the Indian tribes, would have made efficient plantation labourers is a matter undecided, but a great many of these tribes are now extinct, and the class inhabiting the towns are unsuited thereto; whilst the rubber workers, who regard themselves as skilled labourers, and receive good pay, would be unlikely to turn to agriculture, except under the stress of necessity, which however may occur if the rubber business declines. Manaos lies isolated, save for the great river, amid practically primeval forests. No sources of food produce surround it, and no roads connect it with other centres of human effort. Thirty years ago the town was neglected and insignificant, for rubber had little use or demand then, but with the growing demand and price Manaos became a fine city, with a cathedral, a bishop’s palace, a great theatre, electric light and electric trams. Agriculture is neglected: the advent of rubber, the rush and greed for the "black gold," as it has been termed, has brought about its decline, and the small plantations of cotton and maize have gone to decay; the forest has overwhelmed the clearings, and the workers who cultivated them have abandoned the soil for the rubber forests.

Formerly Brazil contributed 90 per cent of the world’s supply of rubber, but this proportion has greatly decreased. The rubber crop of the Amazon valley in 1911-12 yielded 36,547 tons of rubber, as against 39,000 tons for the year 1909, according to the Brazilian government statistics. The rubber included is of two kinds, rubber and caucho. That of Brazilian origin came from the forests of
the following rivers approximately: 3,000 tons from the Solimões and Javary rivers; 12,000 tons from the Purus and Acil, 4,800 tons from the Juruá; 5,700 tons from the Madeira, and 850 tons from the Negro, with 2,500 tons from Iquitos. Of the total amount 23,000 tons was classed as rubber and 5,800 as caucho. The exports of rubber and caucho from Manaos to Liverpool were 6,200 tons, and elsewhere to Europe 7,875 tons, and to America 9,045 tons. The maximum price obtained for fine rubber per pound at that time was 5s. 2d. In 1919 the total export was 33,000 tons. There are now numerous plantations.

British capital is fairly well represented in the Amazon valley, the steamship line from Liverpool being a British enterprise and dependent upon Amazon trade, and the harbours of Manaos and Pará are both in the hands of British companies. Port works, waterworks, tramways, and electric lights are largely owned by British shareholders in these towns, matters whose prosperity depends upon rubber. The capital of the Pará electric tramways company is £780,000. The traffic revenue in 1911 amounted to nearly £200,000, and that from electric lighting nearly £90,000; and a profit of nearly £116,000 was paid. Foreign business in Pará is well divided internationally. Luxurious motor-cars are imported from France and the United States, and although the roads in Pará and Manaos are unpaved, the cars are considerably used, especially by doctors and others. Cotton goods come from Manchester, and Britain also predominates in exports of alcoholic drinks, as gin, whiskey, and brandy. Only the best quality of champagne is appreciated, which comes from France, and wine from Portugal. The Latin American people are largely addicted to alcoholic drinks of this character, especially liqueurs and high class productions generally from Europe. A good deal of falsification takes place, especially in the re-using of bottles and labels of well-known brands. Germany dominates the market of Pará for laces, cloth, embroidery cotton, articles of tin and aluminium, toys, lamps, mirrors, pencils, paper, and also supplies musical instruments and articles of clothing. In the finer sorts of clothing France occupies the first place,
as also with drugs and perfumes. The number of German commercial travellers generally preponderates over those of any other country. The method of doing business by commercial traveller is stated to be the better way in Brazil, for correspondence does not always receive attention, and full security must be established.

With the increase of industry, motor-boats may be expected to multiply on the Amazon in the future. In the Brazilian state of Amazonas alone there are 45,000 miles of navigable water at the disposal of the inhabitants, which offer means of communication in regions through which railways possibly will never penetrate. But one of the requisites to the progress of the Amazon valley in the future will be that of labour. There is a considerable supply of cheap and good labour in the West Indian Islands, but the negroes of the British possessions would, in view of the disclosures of the Putumayo, where they were imported and forced to work as slave drivers and made professional floggers and murderers of Indians, have to enter the valley under supervision. A railway from British Guiana along the Rio Branco, which, coming from the north enters the Rio Negro above Manaos, has been projected, and would form a means of entry for such labour.

In regard to native labour in the Amazon valley, a Bill has been brought forward in Brazil by the Minister of Agriculture for the betterment of the condition of the Indians, the republic being anxious, in view of recent occurrences in the Amazon valley, to justify before the world its attitude towards the Indian citizens. As an ethnic element the Indian is vastly superior to the negro, and it is an insane policy to permit the deterioration of these valuable races. The history of the Indians in Brazil is a curious one. As early as 1537 Paul III. declared "that they were men like others," and therefore free, while regulations were drawn up in 1548 and 1570, which, though somewhat contradictory to each other, yet made for the liberty of the Indian. Later on, however, the Pope, alarmed at the atrocities which had occurred in Mexico and Peru, "sanctioned slavery as a means of avoiding these horrors." In
1639 Pope Urban VIII. excommunicated the captors and vendors of the Indians, but later the Portuguese Government allowed the establishment of slavery. Brazilian legislation dealing with the Indians dates from the Royal mandates of Dom John VI., which permitted slavery. In 1831 the orders of Dom John were repealed, and the Indians considered as orphans in the eyes of the law, and in 1883 the Judge whose business it was to look after orphans and their property was instructed to protect the Indians. This decree was confirmed in 1842, and the standing of Indians in Brazil has remained the same down to the present day. The first step which would be taken under the Bill, if it becomes law, would be the recognition of all Indians born on Brazilian soil as Brazilian citizens. Furthermore, they would be classified, registered, provided with a special penal code, and with safeguards for such tribes as are not yet sufficiently civilised to look after themselves completely as real citizens. Probably the general lines of the Bill would strengthen the hands of the service for the protection of the Indians, whose efforts so far have been considerably handicapped by the legal status of those with whom they have to deal. In Peru and other countries upon the Amazon valley the forest Indians practically have no rights, and have been hunted and enslaved like animals, without redress from the petty authorities, who indeed have countenanced or entered into these operations, known as correrias.

In all probability the exploitation of the Indian would never have grown to being if the fine work of the old Jesuit and Franciscan friars in Brazil and Peru had been allowed to flourish. One of the greatest names associated with the Amazon is that of the famous Padre Samuel Fritz, a Bohemian by birth, who passed the larger part of his life in the service of Spain, in Peru as a Jesuit missionary, working from 1686 to 1723 among the Indians of the Amazon forests. The Portuguese built forts at the confluence of the Rio Negro, where Manaos now stands, in order to assert their sovereignty, as against the Spaniards, over that part of the river; and despatched armed bands up stream, which destroyed the Christian missions and settlements Fritz had founded. The
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Cruelties practised in these slave-raids, for such in effect they were, caused the tribes to flee to remoter regions, and a great diminution of the population followed, in the first half of the eighteenth century. It is only under a system such as the old missionaries established, a species of organised industry-planning in which native crafts and agriculture were encouraged, and self-contained communities created, that the valuable Amazon native tribes can be conserved. Modern "industrialisation" in any form, where they are exploited under a system of dividend-earning, will only ruin and destroy them.*

The uncivilised tribes of the Peruvian Amazon region number in the aggregate approximately 150,000 to 300,000 souls, but due to their widely separated conditions any exact calculation is impossible. Often there is little distinction between these tribes, except that of name; but some are clothed, and others naked, some who build houses and cultivate the ground, fight with poisoned arrows, build the war-towers for defence and use the singular tunday, or signalling instrument—a species of native acoustic telegraphy; some live in great community-houses, others in huts. Some of the tribes use bows and arrows, spears, and the blow-pipe, and manufacture the deadly poison, which forms an article of commerce among them. The tribes of the north are those who fashion the curious reduced human heads, by a secret process. Generally there is a want of cohesion among them, and even strife, conditions which have made them an easy prey to the depredations of the white rubber gatherers and merchants. Bullets, alcohol, small-pox, fevers, heavy mortality, and the correrias, or slave raids, have worked havoc upon these tribes.

The Amazon valley has been the scene of some of the most terrible and ruthless crimes ever performed in the whole history of commerce—the Putumayo rubber atrocities†—which, worse than the occurrence of the Congo, aroused the

* In giving evidence before the Select Committee of the House of Commons to enquire into the Putumayo occurrences, the author urged that tropical regions and tribes should now be made the subject of scientific study and supervision.
† See p. 231.
horror of the whole civilised world. The infamy of these acts does not belong to Brazil; they were carried out by Peruvians and Colombians upon the Putumayo river; a region whose ownership was under dispute between Peru and Colombia. The Putumayo river rises near Pasto in the Andes of Colombia, and traverses a vast region which forms one of the least-known areas of the earth's surface. This river is nearly 1,000 miles long, and enters the main stream of the Amazon in Brazil. The river crosses the equator in its upper portion. Like most of the Amazon tributaries, the Putumayo and its two affluents are navigable throughout the greater part of their courses, giving access by water up to the base of the Andes, and the rubber traffic is carried out by means of steam launches and canoes. The region is a considerable distance west of Iquitos; nearly a thousand miles by water; the small, intermittent river steamers of the rubber company occupying two weeks in the journey; and a part of the course lies through Brazilian waterway. A more direct route is effected by making a portage from the Putumayo to the Napo river, which enters the Amazon about fifty miles below Iquitos.

The native people inhabiting the region are mainly the Huitotos, with other tribes of more or less similar character, but with different names. These people, although known as *infieles* and *salvages*, that is, "un-faithed" and "savage" cannot be described as savages in the ordinary sense of the term. They have nothing in common with the bloody savages of Africa and other parts of the world: but are docile, affectionate, and devoted to their women and children. Their weapons are not adapted for taking life so much as for hunting. On the Putumayo the Indians have been reduced, it is calculated, from 40,000 or 50,000 to less than 10,000, partly by abuse and massacre: partly by having fled to more remote districts, away from their persecutors and the rubber "industry."

The Indians in the Peruvian Montana are not all pacific or docile; and villages which were established in earlier times by the Spaniards, with buildings, plantations, and
industries, have been destroyed by attacks of savages, and their ruins still remain. Probably these attacks were in the nature of reprisals. In some districts the danger from savages prevents settlement, and the blow-pipe and the spear greet the traveller who ventures there incautiously. Tales of savagery have been told in which the white man has been the sufferer; and there has always existed an animus against certain tribes of Indians.

The difficulties of Peru in the governance and development of its portion of the Amazon valley, known as the Oriente or Montaña, are considerable. The physical difficulties against what has been termed the conquest of the Montaña are such as it is impossible for the European to picture. Nature resists at every step. Hunger, thirst, fever, fatigue and death await the explorer in some cases in these profound forests. Peru has sent out many expeditions and the Lima Geographical Society has done valuable work. The possession of the Montaña is of incalculable value to Peru, and is a region any nation might covet. The Peruvians are alive to its value and possibilities, but they are poor. A government such as that at Lima might be well-intentioned, but distances are vast and with few means of communication, and distant officials are corrupt. The educated Peruvians of the coast region cannot be entirely censured for barbarities in the forests, which are cut off by the lofty plateaux and snowy summits of the Andes from the temperate lowlands where the European civilisation of the Pacific littoral flourishes.

The journey across the South American continent by traversing the Andes and descending the Amazon may be accomplished by the traveller who is prepared to endure hardships and delays and a certain amount of risk. It is nevertheless a journey of striking interest, taking the traveller from the shores of the world's largest ocean, across one of the greatest mountain ranges on the earth to the headwaters of the mightiest river upon the globe. The most difficult part of the journey lies in Peru. The Andes may be crossed at one of several points; whether by mule road from the coast ports which give access to Huaraz or Cajamarca, or
whether by the railway from Callao and Lima to Oroya. From these points, descending the eastern slopes of the Cordillera, the roads reach the head of navigation by canoe—the singular Indian dug-out—or by raft, upon one or other of the numerous streams which rise in Peruvian territory. In such small craft the head of steam navigation is reached, on the Huallaga or the Ucayali or other rivers, and the canoe exchanged for a small two-decked steam-launch, which may ply wherever the waterway has a least depth of four feet. The voyage is hot, slow and monotonous in descending these upper rivers when the rapids are passed. The river steamer affords matters of a more diverse character than the canoe, with Indian and mestizo passengers, men and women, baggage of all kinds, and at times men of all professions and nationalities, from Englishmen to Brazilian, Peruvian and Japanese, and from rubber traders to priests. The trading operations at the primitive settlements passed are of more importance financially than the passengers. These settlements are but palm-huts, with the primitive menage of their native occupiers. Among the articles may be seen the fine Ucayali pottery, with its intricate geometrical ornament—a trace of the mysterious culture of early Peru. Drink and dancing conclude the trade or barter, which includes rubber transactions and the purchase of wood fuel for the steamer. There is a constant alternation of blazing sun and blinding rain, but the effect is often fine, and the launch floats onward as a mere speck on the broad placid bosom of the mighty stream.

The length of navigable waterways of the Amazon in Peru is estimated as of 422 miles for steamers drawing twenty feet of water, 5,400 miles for steamers drawing four feet to eight feet, and 1,880 miles for boats of two to four feet draught. The Marañon river is navigable for 484 miles; the Ucayali 868 miles, the Purus 955 miles, and there are others similarly serviceable. These shrink somewhat in the dry season when the water is low, leaving about a quarter of the mileage navigable, except in the case of the main channels. At high water period, and including craft of all kinds down to rafts and canoes, the waterways of Peru are estimated
at a total length of 20,000 miles—traversing the Montaña in all directions. Some of these rivers are, however, in disputed territory. In Brazil the navigable mileage is correspondingly greater, and the neighbouring republics in some cases enjoy means of communication in this fluvial system, as described in their places.

The Government of Peru have striven to maintain a mule road, through the region of the Montaña to Puerto Bermudez on the Pachitea river, the head of steam-launch navigation; from Oroya, on the Oroya railway, which crosses the Andes from Callao. In places the trail is cut in precipitous mountain slopes; in others the heavy rains convert it into a quagmire almost impossible for the mules; and the frail bridges over often swollen streams add to the risks of the journey. A railway line is now under construction to replace this road. The change of climate from the snowy uplands of the Andes to the tropical forests upon this route is very marked. Halting places known as Tambos are kept up, which, however, are little more than primitive huts, and little in the way of clearing or cultivation has been done, whereby food supplies for man and beast might be rendered more plentiful. The region is, however, an attractive one for the naturalist. A system of wireless telegraphy has been established for some years over this zone of territory, with a station at Iquitos; and more recently a station has been erected at Lima on the Pacific coast, and wireless communication is successfully carried on with Iquitos, the distance being 650 miles. Considering that the enormous bulk of the Andes intervenes between the two places, rising to 18,000 feet or more, this must be regarded as a notable achievement. Wireless stations are also to be erected by the Bolivian government along the frontiers of Bolivia with Paraguay, Brazil and Peru, and thus communication will be maintained through the Amazon valley.

The possibilities for the improvement of river navigation, and the connecting of one fluvial system with another in the valleys of the Amazon and La Plata and others, are of marked interest. It is a noteworthy condition of some of these rivers that the water-parting between their sources is very
low, consisting in a short, flat "isthmus," and short lines of railway, or in some cases a canal would complete the circle of communication between fluvial systems whose outfalls are thousands of miles apart. In Peru, Colombia, and Bolivia, there are numerous "varaderos" of this nature, as the portages are termed, connecting the headwaters of the Ucayali and the Madre de Dios rivers, and across the varaderos the rubber gatherers carry their canoes. One of the difficulties of transport and the handling of goods by Amazon steamers is due to the great rise and fall in the river level between flood times. At Manaos this difficulty is very marked for six months in the year, but floating piers are being constructed to overcome the condition; the work being carried out with the assistance of British capital.

In this comparatively little known and wide reaching region of the Amazon valley, Brazil and the adjoining republics possess national properties whose future value is incalculable, but which carry with them difficult problems and grave responsibilities. It is the most extensive river region in the world, and will be capable of infinite resources when exploited by a people who shall know how to turn its value to the good of the country and to the world.