MILITARY REPORT

ON THE

NETHERLANDS' POSSESSIONS

IN THE

EAST INDIES.

PREPARED BY THE GENERAL STAFF, WAR OFFICE.

1919.

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MILITARY REPORT

ON THE

NETHERLANDS' POSSESSIONS DEFENCE

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PREPARED BY THE GENERAL STAFF, WAR OFFICE.

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[A 2245]

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NOTE.—In this handbook the official Dutch spelling of East Indian place-names is used, as the use for Dutch East Indian names of the English transliteration of Malay names in vogue in Malaya is likely to lead to misunderstanding and confusion. It should be remembered that in Dutch *oe* has the value *u*, our *oo*; and *j* is pronounced as our *y*. Thus *Soerabaja* (often spelt in English *Surabaya*) is pronounced "Soorabaaya," *Banjoewangi* "Banyoowangi," and so on. *Tj* is almost like the English *ch*, and *dj* like our *j*; thus *Tjitoeroeg* is pronounced "Chitooroog," and *Djokjakarta*, "Jokyakarta." The place-name *Tjirebon* is usually spelt *Cheribon* by the Dutch themselves.

In the maps, however, the Royal Geographical Society spelling is retained.

The maps show only the more important places referred to in the letterpress.

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MILITARY REPORT ON THE NETHERLANDS' POSSESSIONS IN THE EAST INDIES.

CHAPTER I.

General Description.

Situation and extent.—The possessions of the Kingdom of the Netherlands in Asia, constituting the territories commonly known as the Netherlands East Indies, are situated between 6° North Latitude and 11° South Latitude, and between 95° and 141° East Longitude.

These possessions comprise :—

(*a.*) Sumatra and neighbouring islands.
(*b.*) The Archipelago of Bintang or Riouw.
(*c.*) The Lingga Archipelago.
(*d.*) The Karimata Archipelago.
(*e.*) The Tambilan Islands.
(*f.*) The Anambas Islands.
(*g.*) The Natoena Islands.
(*h.*) The group of Banka and Billiton with neighbouring islands.
(*i.*) Java with Madoera and neighbouring islands.
(*j.*) Borneo as far north as a line drawn from Datu Point to St. Lucia Bay (4° 10′ North Latitude and 117° 53′ East Longitude) along the main watershed ; and the neighbouring islands lying south of these two points, except at the extreme north, where the headwaters of the Sembakong and Sibuko rivers are assigned to British North Borneo. The island of Sebatik, lying off St. Lucia Bay, is divided between Great Britain and Holland. (This frontier was settled by the delimitation treaty of 1915.)
(*k.*) Celebes with neighbouring islands.
(*l.*) All other islands lying east of Borneo and Java as far as 141° East Longitude, and south of Mindanao in the Philippines as far as 11° South Latitude. The northernmost possessions of Holland in the direction of the Philippines are the Nanoesa and Taldoer Islands, the boundary between the Dutch and American islands lying between the Nanoesas and the island of Palmas which is American. The 141st parallel crosses New Guinea, thus leaving the western half of that island to Holland. The frontier on the British New Guinea is slightly modified along the course of the Fly River ; between the points at which that river intersects the 141st parallel the frontier follows the river.

Within the limits of the East Indian Archipelago are certain districts belonging to foreign Powers. These are :—

(i.) The northernmost portion of Timor and a small territory on the north-west coast of that island, which are Portuguese.*

(ii.) The northern part of Borneo, which is British, and is divided between the Crown Colony of Labuan, the territory of the British North Borneo Company, the Sultanate of Brunei, and the territory of the English Rajah of Sarawak, who pays a nominal yearly tribute to Brunei, although Sarawak is four times the size of the latter State.

(iii.) The Sulu Islands, which belong to the United States. They are a connecting link between Borneo and the Philippines, and may be regarded as belonging properly to the East India Archipelago. The fact that their inhabitants are Moslems, also connects them rather with the East Indies than with the Philippines. The boundary between them and British North Borneo runs between the island of Sibutu, which is American, and the Bornean mainland.

All the rest is so-called Government territory, which has been handed over to the Netherlands by treaties, with Great Britain (1814, 1824, and 1877), Spain (1846), and Portugal (1849), or has become Dutch by right of conquest, purchase, or treaties with native States. The semi-independent Batak lands and certain districts lying south of them in Sumatra are regarded internationally as Dutch territory.

Political sub-division.—From a political point of view the Dutch possessions are divided into :—

(*a.*) Territories like Java, which, with the exception of the native principalities of Djokjakarta and Soerakarta, are directly administered by the Dutch.

(*b.*) Territories in which the native princes are, subject to certain restrictions, allowed to govern their own dominions, *e.g.*, Djokjakarta and Soerakarta in Java, Sambas in Borneo, the Batak lands in Sumatra, and Gowa in Celebes.

(*c.*) Territories like New Guinea in which the Dutch have not yet set up a complete administration.

Area.—The Netherlands Indies are generally reckoned as having an area of about 740,000 square miles, though only a few of the islands have been accurately surveyed. The Dutch portion of New Guinea alone is supposed to have an area of rather more than 150,000 square miles.

* A Convention delimiting the frontier in Timor was signed at the Hague on the 1st October, 1904.

Physical geography.—Geographers, for physical reasons, divide the Indian Archipelago into two groups of nearly equal size, of which the western in a former geological era belonged to Asia, the eastern to Australia. The boundary line, where the shallow Java Sea ends and the deep bed of the Pacific begins, runs approximately between Borneo-Celebes and Bali-Lombok. There is a marked difference in the flora and fauna of the two groups.

Access to the ring formed by the Dutch possessions is gained by numerous straits. On the side of the Indian Ocean alone there are twelve navigable passages. The best known are the Straits of Sunda and Bali, and the Straits of Malacca, which separate Sumatra from the Malay Peninsula. Further east the northern entrances from the Pacific are wider, such as the China Sea and the Seas of Sulu and Molucca. In the same way the various islands composing the Archipelago are separated by channels of various breadths. The most important of these are the Java Sea, Flores Sea, Banda Sea, Straits of Makasser, Straits of Karimata, and Banka Straits. Intercourse between the islands is easy, as, owing to the way in which they are shut in, storms are of rare occurrence.

It may be stated broadly that alluvium and other quaternary strata, tertiary formations such as limestone and volcanic rocks and sandstone, form the chief geological features of the islands. To a certain extent the islands owe their existence to volcanic action, 150 active and extinct volcanoes testifying to this. Some of the low-lying islands are of coral formation. These are chiefly to be found in the eastern part of the Archipelago.

It is generally considered that the mountains of the Archipelago form two distinct systems. The one, beginning with the Barisan Mountains, in Sumatra, runs thence through Java and the successive islands to Timor, finally losing itself in the north of Halmaheira or Gillolo. This system may be a continuation of the mountain system of the Malay Peninsula. The second system begins with the mountains of north Celebes, spreading its branches to the Philippines and Sangi Islands.

There are a few peaks which exceed 10,000 feet in height: these are Indrapoera, in Korintji (12,255 feet), and Loeseh, in Atjeh (11,000 feet), both in Sumatra; Semeroe and Salak in Java, Goenoeng Agoeng in Bali, Rindjani in Lombok, and Lompo-Batang in South Celebes. The highest hill in the East Indies, with the exception of the Snow Mountains in New Guinea, is said to be Kina Balu, in British North Borneo, which is 13,698 feet high.

Some of the smaller islands consist of single hills, the slopes of which run straight into the sea, such as Goenoeng Api, in the Banda group, and Ternate. Other islands, again, are remarkable for the absence of hill features, such as the Riouw, Banka, and Billiton groups. In Sumatra the hills lie entirely along the western coast of the island, the eastern portion consisting of extensive plains. Java is somewhat similarly formed, the southern side being usually hilly, the northern more or less flat. The same configuration may be noted in Borneo, Celebes, and Halmaheira.

The curious form of the two last-named islands, due to the fact that alluvial deposits are lacking and the various mountain spurs run straight into the sea, is very striking.

Rivers.—The larger islands of the Archipelago, especially Sumatra and Borneo, have many rivers, rendering the country fertile. The inhabitants originally all lived on the river banks, and the less civilized do so still. But from the shape of most of the islands it is obvious that few of the rivers can be of any very great magnitude. In Java there are 400 rivers, but only two of them, the Solo and the Brantas, are navigable. In Sumatra the rivers are larger, viz., the Singkel, on the west coast, and the Siak, the Indragiri, the Djambi, and the Moesi, on the east. The substantial form of Borneo makes it an exception, large rivers being found in nearly every part of it. We may mention the Kapoeas or river of Pontianak, which rises somewhere in the Central Mountains, the two Dajak (Dyak) rivers—the Great and Little Dajak—the Mahakam, and finally the Baritoe, on which Bandjermassin lies, a stream in length equal to the Rhine. Naturally the rivers of the Archipelago do not afford very good means of communication except in Sumatra and Borneo. The water runs off very quickly in most of them, others have numerous shallows, and many have reefs and sand or mud banks which block their entrances. Native *prauws* manage, however, to navigate many of the rivers, and occasionally even larger ships can proceed up them to a considerable distance from the coast.

Seasons and climate.—There are, roughly speaking, two seasons in the Archipelago—the east and west monsoons—with a period of change between the two, called by the Europeans "*kentering*" (in English "veering"), during which calms are frequent. South of the Equator the east or dry monsoon lasts from April to October; north of the Equator from October to April; the rest of the year the west or wet monsoon blows.

The proximity of the continents of Asia and Australia naturally affects the course of the monsoons, and, as may be expected, the season of the two monsoons varies in different parts of the Archipelago. The regular change of the monsoon only takes place in the low-lying districts. Buitenzorg forms an exception to this rule; there, during the east monsoon, rain falls frequently, sometimes daily. In South Celebes the east monsoon lasts, as a rule, much longer than the wet season. In Batjan (south of Gillolo), during the east monsoon, the wind very often blows from the south for days at a time, accompanied by heavy rainfall. In Amboina, Boeroe and Ceram, on the south coasts, the monsoons completely change, the ordinary dry being the wet and the wet the dry monsoon. Near the equator the change of the seasons is very irregular.

The south-east monsoon, which blows for five months over the Australian deserts, makes the eastern districts of Java drier and hotter than the western.

In addition to the monsoons, the regular land and sea breezes, prevalent in the coast districts, exercise a great influence on the

climate of the Archipelago. The sea breeze blows in the daytime, the land wind at night. These winds are most marked in the dry season.

Certain local winds deserve mention. Amongst these are the "*gending*," or "*gronggong*," of East Java, which blows daily during the intensest months of the east monsoon from the end of June to September, and especially during August; the "*baroeboe*," which blows during the months of July and August between Maros and Mandar on the west coast of Celebes, and which is said to be very injurious to health; and, finally, the "*sumatras*," which blows in the vicinity of Sumatra and the Straits of Malacca; they rise very suddenly, and are a danger to navigation.

Generally speaking, the climate of the Archipelago is very much the same in all parts, excepting in the hills; the average temperature may be taken as 83° Fahrenheit, and does not vary much throughout the year. The difference between day and night temperature is, however, considerable, sometimes amounting to 22° Fahrenheit.*

On the whole, in spite of rain falling (in Java) on 220 days in the year, the climate is not very unhealthy for Europeans. It hardly affects new arrivals at all. There is very little malaria, and that only on the seacoasts here and there, chiefly in the ports. A very long stay in the islands may, however, be permanently prejudicial to health. Some places, such as Buitenzorg, Malang, Fort de Kock, and Tondano, are said to be specially adapted to a European constitution.

Magnetic variation.—The magnetic variation is about 2° E. throughout the Archipelago. Lines of equal variation run approximately along the main line of islands from east to west, and also through the centre of Borneo, Celebes and Timor from north-west to south-east.

* The mean temperature of Batavia is 78·9°. The mean annual rainfall at certain places is as follows:—Batavia, 70·7 inches; Singkel, 179·6; Kota Radja, 67; Menado, 106·8; Ternate, 88·5; Benkoelen, 131·3; Banjoewangi, 55; Koepang (Timor), 59·3.

CHAPTER II.

History.

The history of the Netherlands East Indies may be most conveniently divided into three parts :—

A.—Before the arrival of the Europeans.

B.—Under the Portuguese and Spaniards.

C.—Under the Dutch.

A.—*Before the arrival of the Europeans.*

Of the early history of the Malay Archipelago only indefinite accounts have reached us. It is known that this remote corner of the globe was visited by trading Arabs and Chinese at a very early period, and even by Greek mariners still earlier. The island of Chrysé ("the Golden"), probably Sumatra, was known to the Roman writer Pomponius Mela (43 A.D.), and in the *Geographia* of Ptolemy we find a perfectly recognizable description of the Malacca Straits and the Gulf of Siam, the Malay Peninsula and the island of Sumatra (Sabadius). The Malay Peninsula was well known as "the Golden Chersonese." The accounts handed down are, however, so confused and vague that no idea can be gathered from them as to the conditions which prevailed in the Archipelago in those days.

It is not known when the Malay culture first developed in Sumatra, its earliest home. But in the first centuries of the Christian era there arose on the western coast of the island the shadowy "empire" of Menangkabo, which extended its influence to Borneo, Bali and Java, and continued to exist till the twelfth century. A Hinduized form of Buddhism, resembling Jainism, was introduced into Java in the seventh century A.D., by colonists from the Coromandel coast, who soon dominated the whole island, which was henceforth ruled by princes of Indian origin. The Brahminical element slowly supplanted the Buddhist (partly, no doubt, owing to the influence of the native animistic beliefs), and the religion of the princes, now adopted by the whole population not only in Java and Madoera, but also in Bali, Lombok and other islands, gradually became entirely Hinduized. The great *vihara* or temple of Boro Boedoer, in Java, north of Djokjakarta, belongs to the period of transition from Buddhism to Brahmanism, the Buddha being treated in its sculptures as an *avatar* of the god Vishnu, although still seated on the lotus-flower in the traditional Buddhist attitude. The later temple of Prambanan, east of

Djokjakarta, is, on the contrary, purely Brahmanic, and the Buddha does not appear in its sculptures, which show only the deities of the orthodox Hindu Pantheon.

The Arabs first appeared as traders on the coast of Sumatra in the beginning of the 11th century. The first landing is said to have taken place near Periaman, on the west coast, and the first to land, a certain Burhaneddin, is still regarded as a saint, and his tomb shown, in the neighbourhood. Missionaries were at once sent on to Java as propagators of the Muhammadan faith. The struggle between the followers of Islam and the Hindus in Java ended in 1478 with the fall of Madjapahit, a Hindu principality in the vicinity of the modern Soerabaja.

In 1443 the Moslems conquered the kingdom of Padjadjaran,* and in 1478 Madjapahit also fell, only Bali, a dependency of Madjapahit, remaining unconquered. Bali still remains faithful to Hinduism, as also do the inhabitants of the Tengger Mountains in Java, though their Hinduism is much debased, and their chief object of worship is now the volcano Bromo, which was originally regarded as the home of the god Siva.

With the fall of Madjapahit began a new and important period in the history of the Malay Archipelago.

Although Muhammadanism never took any very deep hold on the people, the commencement of the Muhammadan era was naturally followed by great social and political changes. In Java a number of small independent Muhammadan States soon sprang up, of which the best known subsequently were Demak, Padjang, Kediri, Grisik, Japara, Tjirebon (often spelt "Cheribon"), Djakatra, and Bantam. The most powerful of these States at first was Demak, the founder of which, Raden Patah, gave out that he was a descendant of Bra-widgaya (Prince of Madjapahit), and exercised some control over the neighbouring States. About 1546 the Regent of Padjang attained the supremacy, only to succumb, however, to Kjai Gede Mataram†, the founder of the powerful State of Mataram. When the Dutch first appeared on the scene the whole of Java and Madoera, with the exception of Tjirebon, Djakatra, and Bantam, which maintained their independence, was practically subject to Mataram.

In Sumatra also the introduction of the faith of Islam did not fail to exercise an effect on the political situation. Along the coasts, where the Hindus and Hindu-Javanese had been all powerful at one time, the Portuguese found several Muhammadan States independent of one another, Menangkabo, Indrapura, Palembang, and Siak being the most important. In the north of the island were the States of Pedir‡ and Pasei.§ The Atjeh or Acheen district belonged to the former kingdom until about the beginning of the 16th century, when Raja Ibrahim, Governor of

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* Approximately the modern Pasoeroean.
† Now divided into Soerakarta and Djokjakarta.
‡ Along the north coast from Medan to the Kampar River.
§ The limits of this State are apparently unknown.

Acheen, established its independence. His successors succeeded not only in conquering the whole north coast, but also in extending their influence down a considerable tract of the west coast of Sumatra.

East of Sumatra lies the Riouw-Lingga Archipelago; here the governing class consisted of Malays from Sumatra and Malacca. On the arrival of the Portuguese these islands formed part of the dominions of the Sultan of Johore (in Malacca), who called himself Prince of Johore, Riouw-Lingga, and its dependencies. Other Malay colonists had settled in Borneo, and had, even before the fall of Madjapahit, formed several States. The Hindu-Javanese also had colonies here, but the Arabs do not seem to have sent colonists to Borneo till after the arrival of the Portuguese. This much is certain, that Islamism was not generally followed in the coast districts before the middle of the 16th century.

The majority of the original population, called Dajaks (Dyaks), retired before the colonists into the interior, where they still exist.

The introduction of Islamism into Celebes took place at a still later date, after the Dutch had made their first expeditions to the Archipelago. Like Borneo, this island was divided into a great number of petty States, no one of which was on good terms with any other. In South Celebes the leading States were Gowa* and Boné; to the latter State parts of the small Sunda Islands (Sumbawa and Flores) were tributary.

The numerous internal dissensions rendered the conquest of the Archipelago no easy matter. These dissensions were worst in the Moluccas or Spice Islands (the present Presidency of Ternate). Here, whither Islamism had early found its way, four Sultans, those of Ternate, Tidore, Batjan, and Halmaheira (or Gillolo), were continually fighting for the supremacy. At first the Sultan of Halmaheira appears to have been the most powerful. By degrees the other three States, which were chiefly inhabited by Malays, became more powerful, and eventually Ternate and Tidore divided Halmaheira between them. In the beginning of the 16th century the influence of Ternate had extended as far as Celebes, and also to Ceram, Amboina, and Boeroe. Tidore, on the other hand, had made conquests chiefly in the direction of New Guinea. From Ternate, Tidore, and Batjan the Muhammadan religion spread over the neighbouring islands; as in the rest of the Archipelago, however, it was confined almost entirely to the coast population.

B.—*Under the Portuguese and Spaniards.*

Matters were much as they have just been described when in 1510 a rumour spread through the islands that white men had built a fort in Gowa. The Portuguese, for such they were, proceeded thence under their gallant leader, Affonso d'Albuquerque, to Malacca. Driven by curiosity, visitors flocked from all parts of

* In the extreme south of Celebes.

the Archipelago to see these strangers and to ascertain their plans. From Java and Sumatra also ambassadors were sent, and it was possibly at their request that in 1511 d'Albuquerque despatched Francisco Serrano with three ships to explore the other islands. After a short stay at Grisik, in Java, Serrano proceeded to Amboina, where he was well received by the natives.

At that time war was raging between Tidore and Ternate, and the Portuguese had an opportunity (which they did not neglect) of taking one side. Selecting the stronger, they sided with Ternate, but were unfortunately at that time not in a position to assist their new friends. Not till 1521 could a sufficiently strong fleet, under the brothers De Brito, be sent from Malacca to the Moluccas. Meanwhile, the Tidorese had had time to enlist some Spaniards on their side, and when the Portuguese arrived at Ternate they found the enemy well prepared for defence. Retreat was not to be thought of, so the combined Ternate and Portuguese fleet proceeded to Tidore. After a severe struggle the Tidorese were defeated, and from this date Portuguese influence spread rapidly over the Moluccas and neighbouring islands. In less than five years the Portuguese had occupied all the more important places, and, what was much more to the point, had secured a monopoly of all spices. They were equally successful in establishing profitable mercantile relations in other parts of the Archipelago, amongst others in North Sumatra. Their influence was, however, not to last long, and this entirely through their own fault. These early discoverers appear to have succeeded at first through good luck, and not through any sagacity in their dealings with the native princes who had become their allies. The way in which they treated the ordinary native also left much to be desired. To this must be added that the Spaniards, who had received reinforcements from Spain in 1529, returned to Tidore and continued the war against Ternate and the Portuguese. Soon, too, the natives of the Moluccas got tired of the foreigners, and began to look for some means of throwing off their yoke. The hour of vengeance came in 1536, when the so-called "Molucca vespers" took place, a massacre which cost hundreds of Portuguese their lives, and threatened to destroy the power of Portugal in that quarter. This danger was only averted by the feuds among the different native princes and by the favourable impression created by Antonio Galvano, the new Portuguese governor. The native princes petitioned the King of Portugal to appoint Galvano governor for life. but he was recalled in 1540, and was succeeded by Georgio de Castro, whose rule was one long period of mismanagement.

The white conquerors succeeded, it is true, with the aid of ships, men and money, in holding their own for some years more, and even in establishing themselves on islands beyond the Moluccas proper and Amboina (viz., in Makasser, Timor, Panaroekan in Java, Bantam, and Pasei), but their death warrant was signed. Their position did not even improve in 1580, when after the conquest of Portugal by Philip II., the Spaniards, who up till then had been their bitterest enemies, became their friends. The treacherous

capture and murder of Baab Ullah, Prince of Ternate, whose body was subsequently mutilated and sent to Gowa, rendered reconciliation an impossibility. The total destruction of their power was now merely a matter of time.

C.—*Under the Dutch.*

First explorations.—The reason which first induced the Dutch to go to the Malay Archipelago was that Philip II., determining to punish the Dutch for their refusal to submit to his yoke, closed the Portuguese harbours to them. Naturally this measure was severely felt in the Netherlands, the mercantile fleet of which had at that time the largest carrying trade in Europe, and the Dutch determined, in consequence, to see what they could do for themselves in the Eastern Archipelago. About 1595 a society was founded in Holland called "De Maatschappij van Verre," and on the 5th April, 1595, the first fleet, consisting of four vessels, "Mauritius," "Hollandia," "Amsterdam," and "Het Duifken," proceeded *vid* the Cape to the Malay Archipelago under command of Cornelis de Houtman and Jan Janszoon Molenaer. These first explorers were by no means men of much repute in the Netherlands. They visited Bantam, Tuban, Madoera and Bali, but were everywhere badly received by the natives, this reception being due chiefly to the cruel way in which the latter were treated. They returned to Holland in February 1597, having lost 150 of their number. This want of success only spurred the Dutch on to fresh effort, and a second company, the "Nieuwe Compagnie" was formed for the exploration of the Malay Archipelago. The original company and the Nieuwe Compagnie, however, soon united under the name of the "Oude Compagnie," and in 1598 a fleet of six ships and two yachts was sent to the Malay Archipelago. The fleet was commanded by Admiral Jacobus Cornelis van Neck, who was accompanied by Vice-Admiral Wijbrand van Warwijck and Jacobus van Heemskerck. This expedition met with a much more favourable reception, and in January 1599 the admiral was able to return to Holland with four of his ships fully laden, the cargo comprising, among other things, 600,000 lb. of pepper, 250,000 lb. of cloves, and 2,000 lb. of nutmeg. The two ships left behind under Wijbrand van Warwijck and van Heemskerck visited Tuban, and Grisik, and afterwards Amboina, Banda, and Ternate ; on the last two islands Dutch trade depôts were established under Adriaan van Veen and Frank van der Does. The natives now appeared only too glad to welcome any stranger who would free them from the hated Spanish and Portuguese yoke.

Before these successes became known in Holland, a third fleet under Steven van der Hagen left Holland in April 1599 for the Moluccas. On reaching his destination van der Hagen built the first Dutch fort in the Archipelago in Amboina, and called it "het Kasteel van Verre." The command of this post was entrusted to a warrant officer, called Jan Dirksz Sonnenbergh, who received the somewhat too ambitious title of "Governor of the Moluccas."

In 1599 the "Oude Compagnie" despatched a fourth fleet, under Jacobus Wilkens, to the Archipelago; this was followed about six months later by a fifth, under command of Jacobus van Neck. Thus, within five years, Amsterdam had sent to the Indies 25 ships, most of which had returned richly laden. In addition to this, mercantile relations, giving great hopes for the future, had been established, not only in the Moluccas, but also in Bantam and Grisik, then the two most important trading places in the Archipelago.

Eastern exploration had now become so popular in Holland that several new companies were started in addition to the "Oude Compagnie." Two of these, the "Compagnie van Zeeland" and "Compagnie van Verre," were the first to send ships to Acheen (Atjeh), which was celebrated even in those days. The first expedition to Atjeh, in 1599, cost the Dutch admiral Cornelis his life; the second, in 1601, was well received. The "Nieuwe Brabantsche Compagnie" was also started, but was soon incorporated with the "Oude Compagnie"; Pieter Both, who later became well known, was in the service of this company.

The two "Magellaen" companies should also be mentioned; they attempted to reach the Malay Archipelago by way of Cape Horn. Nine ships started; only two of these, however, successfully reached their destination.

The evils which necessarily arose from the many competing Dutch trading companies in the Indies were recognized by Prince Maurits and Jan van Oldenbarneveld, and an effort was made to amalgamate the various companies into one India company. Before this scheme came into effect the "Oude Compagnie" had sent a fleet of 13 ships under Jacob van Heemskerck and Wolphert Harmensz to the Indies. Just at this time the Spaniards sent a fleet of 30 ships, under Hurtado de Mendoza, to Bantam to punish the natives for their friendliness to the Dutch, and afterwards to proceed to the Moluccas for the same purpose. This was a bold undertaking, and, if successful, would probably have put an end to Dutch commerce in the Archipelago. It would, moreover, have been successful had not Wolphert Harmensz, who arrived in the Sunda Straits about the end of the year, boldly attacked the Spanish fleet with the five ships under his command. After a comparatively short engagement he defeated the Spaniards. This event was the final blow to the Spanish and Portuguese supremacy, and laid the first solid foundations of Dutch rule in the Archipelago.

Formation of the Dutch East India Company.—Three months after this victory off the coast of Bantam Prince Maurits and Jan van Oldenbarneveld succeeded in overcoming the many difficulties in their way, and founded the Dutch East India Company, or, as it was called, "Geoctroyeerde Oost-Indische Compagnie." This was a semi-mercantile, semi-political body, on which devolved the task of completing the conquest of "Insulinde" (as the East Indies were then and are often now called), which had so brilliantly been begun.

The directors of the new company set to work with zeal and energy, and during the five years, from 1602 to 1607, five fleets. or 59 vessels in all, were sent to the Malay Archipelago. Although some of these expeditions, *e.g.*, that of Admiral Verhoeff, were unsuccessful, and although the Spaniards and Portuguese endeavoured in every way to set the natives against the Dutch, the influence of the latter continued to spread. In 1610 so many posts had already been established, and the Dutch influence so far extended, that the directors considered it necessary to send out a local director to superintend matters in the Far East. The first man sent out was Pieter Both, who received the title of Governor-General.

The history of the Dutch East India Company may be most conveniently divided into periods by the following historical landmarks :—

1602–1610.—From its establishment to the arrival of Pieter Both.
1619.—Establishment of Batavia.
1619–1629.—Jan Pieterszoon Coen, Governor-General.
1629–1641.—Conquest of Malacca.
1674.—Rising of Truna Jaya.
1703.—First Java war of succession.
1719.—Second Java war of succession.
1740.—Rising of the Chinese.
1755.—Division of Mataram into two separate principalities.
1800.—Dissolution of the Company.

First appearance of the English.—The task which fell to the share of Both and the newly-formed council was far from easy. Owing to the want of a settled government most of the Dutch colonies were at that time in a deplorable condition. The English East India Company was formed in 1600, and endeavoured in every way to destroy the Dutch trade monopoly. Pieter Both endeavoured to establish the Dutch seat of government at Djakatra —a place better suited to the purpose than either Bantam or Amboina, but some years elapsed before this change took place. In 1614 Both was succeeded by Gerrit Reijnst, who first commenced dealings with Mataram; he died the following year, and was succeeded by Laurens Reael. Reael confined his attentions principally to the Moluccas, where he had to contend with much opposition on the part of the English. The latter succeeded in stirring up the natives against the Dutch, and the Dutch returned the compliment in many places, amongst others at Bantam, where the English had established a factory close to that belonging to the Dutch.

Foundation of Batavia.—In Holland, too, the prospects of the Dutch East India Company were anything but flourishing, the shareholders accusing the governors of numerous malpractices. All the malcontents, were, however, silenced when Jan Pieterszoon

Coen, appointed Governor-General in 1619, succeeded in repulsing a combined attack of English, Djakatrans and Bantamese on the Dutch fort of Djakatra. Coen then laid the foundation of Batavia on the ruins of the old princely residence of Djakatra.

With the founding of Batavia commenced a series of successes on the part of the Dutch East India Company, and by degrees the whole of Java was conquered. In 1622 occurred the horrible and disgraceful torture and massacre of the English traders and seamen at Amboina, which will always remain an indelible blot upon the Dutch name. These poor men, who are known to have been wholly innocent of the designs against the Dutch which were attributed to them, were racked, subjected to the water-torture, had burning tapers placed under their armpits and between their toes while they were firmly bound, and finally after these tortures had extracted "confessions" from them which they afterwards retracted, they were beheaded. England was not even at war with Holland at the time. Owing to the cowardice and weakness of the government of Charles I. this unprovoked crime remained unavenged. It is at least satisfactory to record that the chief mover in the outrage, the governor van Speult, was on his voyage home shipwrecked on the Arabian coast, and put to death by an Arab sheikh. The result of the massacre was the practical extinction of English enterprise in the East Indies. The Prince of Mataram, foreseeing the fate that was in store for him, made two attacks on Batavia, with a view to checking the Dutch advance; both were, however, repulsed. Jan Pieterszoon Coen, who had come out as Governor-General a second time, died in 1629. He was succeeded by Jacques Specz.

During the governorship of Antonie van Diemen (1636–1645) Malacca was conquered. The loss of this important post was the last blow to Portuguese power in the East Indian Archipelago. After this, the rise of the Company was very rapid. From 1653 to 1678 Jan Maetsuyker was Governor. Unfortunately this period of brilliant success had also its dark pages. The spirit of monopoly induced the Dutch, particularly from 1650–53, to devastate and depopulate whole districts and even islands—an outrage from which the Moluccas have even now hardly recovered.

But vengeance soon followed. Before the termination of Maetsuyker's period of office the company found itself engaged in a series of bloody and costly wars, both in Java and other islands. These wars were necessary for the extension of the company's influence, and, in some cases, for the maintenance of its very existence. The first of these was the rebellion of Truna Jaya (1674–79), a prince of Madoera, who wished to obtain possession of a part of the island of Madoera, which had been conquered by Mataram. The Dutch assisted their allies of Mataram, but it was only with great difficulty that the rising was quelled.

Wars of succession in Java.—Much more serious was the first Java war of succession, which commenced on the death of the Soesoehoenan (Prince) Amangkoe Rat, in 1703, between his two sons, Soenan Mas and Pangeran Poeger. The Dutch sided with the last-

named, and, in 1705, placed him on the throne with the title of Pakoe Boewana I. The war, however, did not end till 1708, in which year Soenan Mas was made a prisoner and sent to Batavia. Eleven years later, on the death of Pakoe Boewana I., the second Java war of succession broke out. This war caused the Dutch much trouble, and entailed a large expenditure of money before it was brought to a successful conclusion. It resulted, however, in a great increase of Dutch influence in Java.

The year 1740 is a dark one in the annals of Dutch colonial administration. As soon as a settled government had been established in the Archipelago the Chinese began to immigrate; the Dutch Governors, De Haan (1725–29) and Durven (1729–32), endeavoured to stop this immigration, but without success. Under the Governors Patras (1735–37) and Valckenier (1737–41), more drastic measures were resorted to; hundreds of wretched Chinese were seized and sent off to do forced labour in Ceylon. Thereupon the Chinese in Java, reckoning on obtaining assistance from the natives of Mataram, rose against the Dutch, and attacked Batavia. During the course of the fight a fire was seen to break out in the Chinese quarter. This appeared to be taken by the Dutch population as a signal for attack on the Chinese, and a wholesale massacre ensued, not even the sick in hospital or the convicts in prison being spared. This led to a general rising of all the Chinese in the island, and it soon became apparent that they had not reckoned without reason on Mataram. The Dutch had thus to fight two enemies simultaneously, and it was only with the greatest difficulty that the rising was suppressed.

All these wars had tended to extend the territory of the company in Java. Pakoe Boewana II. was gradually becoming less important, but Mataram was still strong enough to be a formidable neighbour. The Dutch were, however, only awaiting an opportunity of crippling this State. This opportunity occurred in 1746, when Pakoe Boewana II. asked the Dutch for assistance against Mangkoe Boemi. The assistance asked for was given, and Pakoe Boewana II. on his death bequeathed his State to the Dutch. This led to the Java war, which ended in 1755 with the partition of Mataram into two principalities, Soerakarta and Djokjakarta. In addition to this, a district was two years later taken from Soerakarta, and placed under the rule of Mas Said as an independent principality. The power of Mataram was thus completely broken.

The destruction of Mataram may be considered the most brilliant feat of the Dutch East India Company, but after this achievement the power of the Company appears to have waned. The administration of the Company became gradually more and more corrupt; its credit with the public in Holland completely died out, and it had several times to receive pecuniary aid from the Dutch Government. The British took advantage of this state of corruption and (the opportunity being given by the fact that Holland was now a subject-ally of France, Great Britain's enemy) succeeded in capturing part of the Dutch possessions,

even Java being threatened. In January 1800 the Dutch Government determined to wind up the affairs of the Company and take over the administration of the Archipelago, and the Council of the Asiatic Possessions was accordingly formed to administer the islands.

Abolition of the Dutch East India Company, and assumption of the administration by the Dutch Government.—With the year 1800 the second period of Dutch rule in the Malay Archipelago begins. It may be divided as follows :—

I.—1800–1808.	Under the Council of the Asiatic Possessions.
II.—1808–1811.	Under Herman Willem Daendels.
III.—1811–1816.	British interregnum.
IV.—1816–1848.	The period of Crown control.
V.—1848–1905.	The reform period.

When the Council of the Asiatic Possessions first took over the administration of the Archipelago, only the posts in Java, Palembang, Bandjermassin, Makasser, Timor and Ternate remained in the hands of the Dutch ; the remainder had been captured by the British, who it 1801 took Ternate also. By the treaty of Amiens Holland was to have had restored to her all her Eastern possessions, but while negotiations were still proceeding war broke out again between France and Great Britain (1803). In 1806 a British fleet once more appeared before Batavia, and at the same time a rebellion of some importance broke out in Cheribon and Djokjakarta, and Soerakarta began to assume a hostile attitude. Shortly after this Napoleon appointed his brother Louis King of Holland. King Louis considered that the first thing to do with regard to the colonies was to place them in a proper defensive condition, and he accordingly appointed Herman Willem Daendels to be Governor-General of the Dutch Possessions east of the Cape of Good Hope. The Council of the Asiatic Possessions was abolished, and in its place a Ministry of Commerce and Colonies was formed.

Daendels arrived in Batavia on the 1st January, 1808, and at once set to work to carry out the difficult task entrusted to him—that of defending the coasts of Java and providing safe anchorage for Dutch ships. With the latter object in view he commenced the construction of a naval harbour in Meeuwen Bay in the Sunda Straits. The Sultan of Bantam objected to this work and to the way in which his subjects were employed on it. This led to a war, which ended in Bantam becoming tributary to Holland, and its dependency, the Lampong district, being entirely taken over by the Dutch. Daendels remained in the East till 1811 ; during this time he did much good, and introduced many reforms. He was succeeded by General Jan Willem Janssens (May–September, 1811), after which the Dutch Possessions were annexed, after a short campaign, by the British and added to their Eastern colonies, then under the rule of Lord Minto.

British interregnum.—Lieutenant-Governor Thomas Stamford Raffles, Governor-General during the British interregnum, was a

man of great ability. He was assisted by a council, of which two members were Dutch. Djokjakarta, Soerakarta, and Palembang were brought completely under British influence. Having settled matters with the native princes, Raffles turned his attention to finance and to the administration of the colony. He completely abolished the monopoly system, and introduced a scheme of land taxation which freed the natives from their former obligation to devote a quarter of their time to work for the State. Raffles altered the system of administration of justice, and even introduced trial by jury. On the fall of Napoleon a treaty was made between Great Britian and Holland, whereby the former agreed to hand back to the latter all possessions which had belonged to the Batavian Republic on the 1st January, 1803. The first of the new Dutch governors-generals was Baron van der Capellen, who remained in that capacity till 1826. The negotiations with Great Britain were not finally concluded till 1824.

The history of Dutch administration in Java from 1816 onwards is dealt with in a very concise manner by Mr. Alleyne Ireland in the "Times" of September 14th, 1904.

The principles which may be said to have guided the Government after the British interregnum were, firstly, that the object of the Government was to secure from its East Indian possessions the greatest possible benefit to the commerce and finances of Holland and secondly, that the Dutch should exact from the people all those feudal services which had formerly been yielded to the native rulers; in other words, the utilization of the native institutions of forced labour and state-ownership of the soil.

Culture system.—These principles gradually found expression in the measures of the Government, and in 1830, under the Governorship of van den Bosch, the "culture system" was introduced and remained for forty years the chief concern of the local administration.

The theory on which the culture system rested, and its methods of working, according to which the natives had to cultivate one-fifth of their land according to the directions of the Government, are briefly described on page 59.

At the present time the system is only in force on the Crown lands in Java.

Owing to the necessity of giving more power to both native chiefs and Dutch officials, in order to make the culture system a success, abuses crept in and corruption became rampant, and both classes fattened at the expense of the cultivator. The result was a formidable agitation against the system, especially in England, where trade-jealousy of the wealth which accrued to Holland through the system worked successfully upon unthinking "philanthropy" and vague dislike of so-called "slavery," *i.e.*, compulsion to do anything. The agitation spread to liberal circles in Holland, and finally the fall of the system was brought about by a very bad Dutch novel, which purported to describe its abuses. These undoubtedly existed, but the system could have been reformed and its utility increased, both for the Dutch and

for the natives, to whom its discipline and compulsion to steady and intelligent work would have been most beneficial.

The culture system was in full force for 35 years, and during that period contributed to the Treasury £40,000,000., after paying all the expenses, civil and military, of the Netherlands East Indies. It may therefore be said, while it existed, to have achieved the object for which it was instituted.

Abolition of the culture system.—During the past 50 years the changes which have taken place amount to a revolution in the ideals and methods of the Government. The Dutch policy has become, comparatively speaking, liberal and progressive. The higher administration—which was formerly corrupt and inefficient—has become honest and capable.

These changes, which were evidenced about 1875 in the modification and subsequent practical abolition of the culture system and the substitution of a land-tax, are probably due to the abuses of the old Government being brought home to the Dutch people, to the improvement of communications and consequent tightening of the chain of responsibility between the local officials and their superiors in Holland, to the growth of popular sentiment in Europe in favour of a more liberal spirit in colonial enterprise, and to the increased sense of responsibility of the Colonial Powers towards their subject races.

To present time.—Since 1824 the Dutch have been gradually, but steadily, extending their influence, which is now paramount in the Archipelago. They have had, like all colonizing powers, to carry out this extension in many cases by force of arms. The most serious war in which they have been engaged is that in Atjeh or Acheen, which was only brought to a conclusion after over 30 years of desultory war.

The Acheen War.—Acheen, in the north of Sumatra, was, up till 1874, an independent Malay State ruled over by a Sultan, whose seat was at Atjeh, a town of 35,000 inhabitants in the north-west of the island. The relations between Acheen and the British were, at one time, very close, and it was practically under British protection from the Calcutta Treaty of 1819 until the Hague Convention of 1871, by which this protection was withdrawn, entirely against the wishes of the Sultan of Acheen, who desired British suzerainty, and hated the Dutch. The latter then attempted to extend their influence over Acheen and endeavoured to come to terms with the Sultan, but without success, and on the 26th March, 1873, war was declared.

On the 5th April, the Dutch General Köhler, together with a force of 4,000 men and a battery of artillery, arrived in Acheen, while ten ships lay along the coast and rivers. Four days later he besieged the town of Missidjit and entered it after a few days, but the Kraton,* the great fortified place of the country, although repeatedly attacked, still continued to hold out, the Dutch troops were beaten off with great loss, and the general himself was killed.

* Now Kota Radja.

The wet season then set in, and nothing further was done until the following December, when a fresh start was made with 12,000 men, under General van Swieten, who, after besieging the Kraton for three full weeks, finally entered it on the 24th January, 1874.

With the fall of the Kraton the regular war was over, but then began the guerilla war, which went on for 30 years, and cost the Dutch many thousands of lives and some forty millions sterling. The thickly wooded hills and jungle swamps of the country lend themselves readily to guerilla warfare.

Operations in Acheen.—Encounters between patrols and detached posts and the rebels in Acheen (Atjeh) were reported from time to time in 1905.

During the year, the number of troops sent there was 1,542, against 2,550 in 1904, 2,967 in 1903, and 3,245 in 1902.

The casualties on the Dutch side throughout 1905 were—

Killed	...	...	...	70 (16 Europeans).
Wounded	...	...	...	248 (52 „).

The enemy left a total of 2,293 dead and 213 prisoners in the hands of the Dutch, who also captured 1,128 rifles, 410 being breech-loaders.

Events in Atjeh.—The political situation in Atjeh during 1906 and 1907 was unsatisfactory, repeated attacks being made on Dutch columns and camping grounds. In August, 1907, Tukanu Muhamat Dawat, a native prince of Kotaradja, was arrested and deported to the island of Amboina on suspicion of intriguing with the insurgents.

In consequence of the dissatisfaction felt in Holland at the continuance of the guerilla war and at certain allegations of cruelty made against the troops of the Colonial Army, the Governor-General, van Heutsz, was ordered, in November, 1907, to proceed to Atjeh and conduct an enquiry. In his report to the Government, General van Heutsz censured General van Daalen, the Governor of Atjeh, for exceeding his powers, for illegal action towards certain native chiefs, and for general failure to carry out the policy of the Government. General van Daalen then resigned, and was replaced by Colonel Swart, formerly Governor of Celebes.

The enquiry into the alleged atrocities was conducted by Lieutenant-General Rost van Tonningen, commander of the forces. The charges against the troops were considered under 6 headings:—(1) Forcible requisitioning of supplies; (2) firing on villages without first summoning them to surrender; (3) shooting women and children; (4) execution of guides, spies, prisoners and unarmed natives; (5) ill-treatment of inhabitants; (6) mutilation of dead bodies. The majority of the charges were considered to be unproved, though some irregularities are admitted to have taken place as regards requisitioning of supplies. Firing on villages without warning was held to be justifiable in certain cases when surprise is essential. The killing of women and children is also considered unavoidable when close fighting takes place in villages.

The enemy's casualties in the fighting in Atjeh are reported as :—

——	Killed	Prisoners.	Firearms captured.
March, 1906, to March, 1907	2,151	844	849
March, 1907, to March, 1908	1,917	649	488

The Dutch casualties in 1906-7-8 were 56 killed and 411 wounded.

Although the Governor-General was welcomed in Holland in the summer of 1904 as the "pacificator of Atjeh" the war was not yet over, and small fights by patrols, captures of arms and casualties on the Dutch side went on till 1914.

The Lombok war.—In 1894, owing to inter-tribal troubles and the haughty and hostile attitude of the native princes, the Government determined to despatch a military expedition to Lombok, and orders were issued for it to start from Soerabaja on the 3rd February.

The expeditionary force, under the command of Major-General Velter, consisted of some 2,400 men and 16 guns, and in addition 1,718 convicts, who acted as transport carriers. On the 5th July the transport fleet entered the roadstead of Ampenan, where it was joined by a naval force composed of five men-of-war and several despatch boats, and the force disembarked without encountering any opposition, and marched to Mataram. After a series of negotiations and interviews, which lasted for over a month and a half, the natives pretended to agree to the Dutch terms, and undertook to pay an indemnity. Towards the end of August the Dutch force was split up into several detached columns, and these were simultaneously attacked by the enemy and driven back to Ampenan with a loss of 97 killed and 272 wounded. Reinforcements were promptly despatched from Java on receipt of the news of these disasters, and early in September a fresh advance was made on Mataram, which was captured on the 29th September. By the end of November the operations were at an end, and Lombok came under the supreme control of the Dutch.

Recent expeditions.—During recent years the Dutch have had to carry out punitive expeditions in Celebes, on the south coast of Flores, and against the Batak chiefs in Sumatra.

The Boni Expedition, 1905.—Difficulties having arisen with some of the semi-independent native princes in South-West

Celebes, who finally refused to comply with the terms of an ultimatum addressed to them, and openly revolted, an expedition under the command of Colonel van Loenen was sent against them in July, 1905. The most important of the insurgent rulers was the Prince of Boni, and the chiefs of Gowa and Loewoe had followed his example.

The expedition consisted of the 6th, 9th and 19th Battalions (each composed of one European and three native companies), half of the 15th Battalion (one European and one native company), a company of police (*marèchaussée*), two squadrons of cavalry, and one or more batteries of mountain artillery, with a proportion of auxiliary services. The 8th Battalion was mobilized and held in readiness in case reinforcements were required, and the 20th Battalion was detailed as a general reserve.

The force was one of the largest which has ever been despatched from Java, and amounted in all to about 2,400 men, of whom about 900 were Europeans, with some 700 horses, and nearly 600 convicts and coolies for transport purposes. The expedition was conveyed from Java in eight steam vessels belonging to the Steam Packet Navigation Company (*Paketvaartmaatschappij*), accompanied by the armoured cruisers "De Ruyter," "Holland" and "Zeeland." The force landed at Badjowa on the 28th July, a previous attempt to do so at Patiro having failed owing to unfavourable conditions.

By 10th August the Prince of Boni had surrendered, and, so far as Boni was concerned, the expedition had accomplished its objects. The Dutch lost during this period only one officer and one man killed, and one officer and about 20 men wounded.

Desultory fighting, however, appears to have continued in other parts of the peninsula for upwards of five months, and it was not until November, 1905, that it was announced that the expeditionary force would be broken up.

Flores.—Some severe fighting took place in the island of Flores in June, 1907. The Dutch troops were for a time hard pressed until reinforcements arrived; the Dutch then gained the upper hand. Captain Christoffel of the *marèchaussée* is reported to have greatly distinguished himself in the suppression of this rising, traversing the island from side to side in a series of forced marches. The enemy's losses were reported as 335 killed and 11 wounded.

Celebes.—Fighting took place in the Mandar* district, on the west coast, in the autumn of 1907. An attack by the Dutch on a fortified position at Boedoeng-Boedoeng was repulsed on the 9th September; a second attack on the 23rd September was successful, the enemy losing 111 killed, including their chief.

Sumbawa.—In January, 1908, in consequence of some disturbances, a column of *marèchaussée* was despatched to Bima Bay. The

* Or Balanguipa.

enemy were driven out of a fortified position at Ngali, leaving 184 dead on the field. The natives then submitted, but in February, 1908, in consequence of renewed disturbances on the west coast of Bima Bay, a column was despatched to Dena, which was captured, the enemy leaving 103 dead on the field.

The Bali Expedition, 1906.—The expedition against the Rajah of Bali was of a punitive and "pacific" nature. The bulk of the expedition embarked at Batavia in four vessels, while another vessel took the artillery and one reserve company from Soerabaya. All landed at Pabean Sanoer (south coast of Bali) in the middle of June. The expedition lasted 6 weeks. Resistance was insignificant, and the casualties practically nil.

The following troops took part:—

3 battalions infantry, each of 2 European and 2 native companies.

2 reserve companies, each $\frac{1}{4}$ European, $\frac{3}{4}$ native.

1 battery of 4—3·7-cm. Q.F. guns.

1 battery of 4—12-cm. howitzers (for use against walls).

1 troop cavalry.

Total, about 2,000 men.

The transport consisted of 250 pack horses and 700 carriers.

Bali.—In April, 1908, a rising occurred in the Kloeng-koeng district of the island of Bali. A column composed of part of the 20th Field Battalion, with two 3·7-c.m. guns and a detachment of convicts as carriers, was conveyed by sea to Koesambo, where they were landed in steam barges. The column then advanced on Gilgal, where it inflicted a severe defeat on the rebels. Reinforcements, consisting chiefly of troops of the 11th Field Battalion, were sent, later on, to aid in the pacification of the district.

In addition, minor operations took place in 1907 and 1908 in the Batak lands in northern Sumatra, and in Riouw, Djambi, Timor, Ceram, and many other districts.

Sumatra.—A serious rising occurred during June, 1908, in the Padang district of Sumatra, owing to difficulties arising out of the collection of taxes. An attack was made on Fort van der Capellen, south-east of Fort de Kock, and railway and telegraphic communication was for a time interrupted. Reinforcements were sent, and the rebels eventually submitted and paid their taxes.

Borneo.—The pacification of the south-east portion of Borneo has followed the death of the pretender Sultan of Bandjermasin in January, 1905, when considerable surrenders and 21 guns, 160 B.L. and 1,000 M.L. rifles were handed in.

Casualties.—The total Dutch casualties in the Indies given in the official reports for the years 1906 to 1908, were as under :—

	March, 1906, to March, 1907.		March, 1907, to March, 1908.	
	Killed.	Wounded.	Killed.	Wounded.
Atjeh	38	197	18	214
Timor	5	21	19	28
Ceram and Menado... ...	53	234	...	...
Celebes	...	...	64	90
Bali	4	28	...	...
Various	11	45	2	20
Total Dutch casualties	111	515	103	352

Java.—There were a few disturbances in Java during 1908, due to the fanaticism of some Moslem preachers, notably the Sayyid Abubakr bin Salim al-Habshi, in Bantam, but they soon died down.

In August, 1909, General van Heutsz was succeeded as Governor-General by Mr. A. W. F. Idenburg, formerly Governor of Surinam and Colonial Minister.

Atjeh, &c.—The pacification of Atjeh made great strides during 1909, the war dwindling into a mere pursuit of occasional marauding bands, and the supersession of military by civil authority was begun. On Sumatra's west coast an outbreak of Moslem fanaticism occurred in the district of Periaman, where a meeting of fanatics at the tomb of Shekh Burhaneddin, the protagonist of Islam in Sumatra, had to be dispersed by force of arms. In 1909–1910 an insurrection in the Mentawei Islands, in which an European official was murdered, was suppressed by the *maréchaussée.* There was also some trouble in Tapanoeli and Djambi.

In the other islands the peace was hardly disturbed during 1909, except for slight trouble in Celebes, Ceram, and Sumba, which was easily dealt with.

Considerable progress was made during 1909 with the exploration of Dutch New Guinea, and in April, 1910, a commission for the delimitation of the frontier with German New Guinea was appointed ; its labours were successfully completed towards the end of the year.

General History, 1910–1918.—In 1910 the frontier delimitations between the Dutch and Portuguese portions of Timor were resumed, but not completed, owing to misunderstandings on the part of the Portuguese.

A complete civil administration was introduced this year in Atjeh, proper, where there were no disturbances. The guerilla with isolated bands of marauders went on, however, in other parts of the Atchinese territory. The Mentawei Islands were pacified,

but new trouble arose in the Nias territory and in Djambi, owing to religious fanaticism, and on the east coast owing to the appearance of Atchinese bands.

Owing to acts of disobedience and refusal to fly the Dutch flag, the Sultan of Riouw-Lingga was deposed at the beginning of 1911.

In Borneo, in 1910, one or two small expeditions had to be sent against troublesome frontier Dyaks. These were carried out successfully with the support of the British authorities in Sarawak. There were as usual disturbances in Celebes, attacks by and pursuit of pirates, &c. The land of Gowa was annexed to the directly administered portion of the island on 1st January, 1911.

In the Moluccas, the self-administered islands of Babjan, Ternate, and Tidore were annexed for financial purposes.

The work of registering and disarming the natives of the southern islands (Sumba, Alor, &c.) went on during 1910 without meeting with much opposition.

During 1911 the peace was undisturbed in Great Atjeh, but in the rest of Sumatra the usual robber disturbances went on, but were less frequent. The same may be said of South Celebes and West Ceram. There was serious trouble in North-West New Guinea during the year, and the territory administered by the Sultan and Residency of Ternate was transferred to the control of Amboina. The disarming and registration of natives in the southern islands led to a serious rioting in Kodi Besar, West Sumba, and to another less serious in North Flores. The still unsettled dispute with the Portuguese in Timor led to a considerable immigration of natives from the Portuguese territory into the more settled and peaceful Dutch district.

The Chinese revolution gave rise to disturbances among the Chinese shopkeepers and miners, which broke out in February and April, 1912, at Batavia, Secrabaja, Semarang, Banka, and Balikpapan. The outbreak at Soerabaja was serious, but was soon quelled.

During 1912 the frontier between Dutch and British New Guinea was fixed by a joint commission.

Quarrels between the Chinese and Arabs and Javanese went on in Java during 1912 and 1913, riots taking place at Bangil, Cheribon, Soerabaja, and other places, which led to some loss of life. In 1912 a movement, probably caused by events in China, the Balkans, and India, began for some sort of native home rule in the Dutch East Indies. The "Indian Party," which arose at Bandoeng, was influenced by this idea, while the Moslem "Sarikat Islam" (Comradeship of Islam), which was started at Soerakarta, was purely Moslem in character. The first "party" eventually dissolved, but the "Sarikat Islam" has continued to gain ground, and its meetings are allowed by the Government under certain restrictions. In 1912 Java and Madoera suffered severely from cholera, which spread to Sumatra and other islands. In Sumatra conditions of public security steadily improved, and Atjeh was practically quiet. The unrest among the Chinese gave rise to riots,

as in Java. Chinese rowdies from Singapore also plundered two opium-depôts in the Riouw Islands. Otherwise Riouw-Lingga, which after the deposition of the Sultan in 1911 was placed under direct Dutch administration, gave no trouble. Newly arrived Chinese miners caused disturbances at Banka. Chinese revolutionaries also caused disturbances at Borneo, which soon died down. Except in the Apo Kajan district, recently taken over by the direct administration, there were no other troubles. In Celebes and the Moluccas nothing more serious occurred than the usual pursuit of pirates and brigands. The insurrection at Kodi Besar, in Sumba, was not yet suppressed, and the registration of natives in the neighbouring isles still gave rise to isolated fights with the Government forces. The dispute with Portugal with regard to the Timor boundary was submitted to arbitration in 1913. In the same year the frontier with British North Borneo in the island of Sebatik was marked with stone pillars. In 1913–1914 there was a good deal of disturbance due to the activities of the "Sarikat Islam" and the "Indian Party." The former movement caused a revival of Moslem religiosity, which greatly increased the number of pilgrims to Mecca, and gave rise to quarrels between the members of the "Sarikat" and Moslems who refused to join it, and between Moslems and Chinese. The leaders of the "Indian Party" (among them a Dutchman) being convicted of sedition, were exiled from the Dutch East Indies.

By 1914 Atjeh was completely pacified, and the whole of Sumatra remained quiet during the year. In the Natoena Isles trouble was stirred up by the fanatical Hadjis (Mecca-pilgrims), aided by a Japanese patent-medicine hawker, who however escaped to Singapore as soon as the authorities intervened. (Interference by irresponsible Japanese of the *Soshi* or "rowdy" type in the affairs of the islands is to be expected from time to time, as there are a good many Chauvinistic Japanese who regard "Nanyo," as they call the Archipelago, as a future field of Japanese expansion). The only other troubles in 1913 were in the restless islands of Flores, Sumba, Timor and Alor. A rebellion of Chinese of Borneo caused some trouble in 1914.

At the end of 1914 a Dutch-Portuguese Commission settled the frontiers in Timor in accordance with the decision of the Court of Arbitration at the Hague. The activity of the Sarikat Islam now became noticeable outside Java, notably in Sumatra, where, however, there was no serious disturbance of the peace. Exaggerated rumours of the revolt of Indian troops at Singapore in February, 1915, caused unrest in the Anambas Islands. In 1914–15 serious trouble occurred in the island of Halmaheira. Sumba, Flores, and the neighbouring islands were troublesome, as usual, and these islands seemed likely to become another Atjeh. The history of Java and Sumatra in 1915 is chiefly concerned with the growth of Sarikat Islam. There were no serious disturbances. On account of the war the number of Mecca-pilgrims decreased enormously. In Borneo there were disturbances which entailed the employment of troops, as also in Celebes and Halmaheira, Alor, Sumba, &c.

There is little doubt that these were partially caused by the feeling of unrest among Moslems caused by the entry of Turkey into the European War.

At the beginning of 1916, Mr. Idenburg was succeeded as Governor-General by Count J. P. van Limburg-Stirum. Shortly before his departure Mr. Idenburg recognized the constitution of a central body of the Sarikat Islam, which previously had been allowed to form local committees only. A good deal of intrigue with irresponsible Japanese seems to have been carried out this year by disffaected natives. These intrigues were started by an exiled chief of Riouw-Lingga named Raja Hitam, who died in Japan in 1912.

A movement was started in 1916 to put the defences of the Netherlands East Indies on a stable footing, taking the name of "Indië Weerbaar" ("India capable of defence"). This movement seems to be considerably confused and mixed up with a native movement, allied with "Sarikat Islam," for the independence of the Indies. The latter showed pro-Germanism, but seems now to be less influential in the councils of "Indië Weerbaar," which appears to be mainly inspired by patriotic Dutch sentiments, and to be directed to the placing of the Dutch Indies in a proper state of defence against a possible Japanese attack. In September, 1916, important army manœuvres took place in the Tjiandjoer—Meester Cornelis district of Java, to test the capacity of the Dutch East Indian troops to encounter a foreign landing force. Anti-Japanese feeling probably caused a good deal of sympathy with Germany among the higher Dutch officials in Java. But the Germans in the Dutch Indies were themselves constantly intriguing against the Dutch Government, and, as much as the unofficial Japanese, once regarded the Dutch possessions as their eventual property. During the war they actively intrigued with disaffected Moslem elements on the ground of their alliance with Turkey, and were busy acquiring land, mines, &c., for after the war.

A serious revolt which broke out in Djambi (Sumatra) in 1916, was said to have been started by Japanese intrigue, and the rebels are said to have had a few Japanese machine guns. The revolt was subdued after a severe struggle, as insufficient troops were sent to Palembang at first, it is said, owing to fear of a Japanese *coup-de-main* in Java. Eventually the 10th and 16th Infantry Field Battalions were sent from Java, with a company of the 5th battalion and detachments of gendarmerie, engineers, &c.

In February, 1916, the commander-in-chief of the East Indian Army, General J. P. Michielsen, lost his life in an aeroplane accident. He was succeeded by Major-General W. R. de Greve.

On 26th October, 1917, a Royal Decree was issued introducing compulsory military service for all male Dutch subjects in the East Indies who are not either indigenous natives or of "the population assimilated to them."

In February, 1918, Mr. Pleyte, the Colonial Minister, delivered a speech to the Lower House of the States-General at the

Hague, in which he outlined the future policy with regard to the Indies as, against Imperialist ideas, in favour of an unselfish internal policy, the open door for commerce, and a sufficient defensive armament.

Attempts to increase the defences of the Indies have actually been begun, but under war conditions it was difficult to carry them out. The general scarcity of tonnage made it difficult to bring either raw or finished material to the Dutch Indies, whose commerce has suffered greatly from this cause.

Finally, the new *Volksraad*, or "People's Council," has been established as an instalment of responsible government in the East Indies (*see* p. 41).

CHAPTER III.

Ethnography.

Distribution—As the Archipelago has been divided into an Asian and Australian portion for geographical reasons, it might in like manner be divided into the same two groups on ethnographical grounds. The line of demarcation in this case, however, lies much further east. The two principal races are the Malays and Papuans. The former occupy the whole of the Archipelago from Sumatra as far as Halmaheira, the pure Papuans being almost entirely confined to New Guinea and the neighbouring islands of Kei and Aru. A mixed race has naturally also arisen; these are chiefly met with in Timor, Flores, Halmaheira, and the other islands lying on the boundary between the habitats of the two races. In Timor this mixed race is predominantly Papuan in its characteristics, in Flores and the Moluccas predominantly Malay. In Sumatra the Sakais are a pre-Malay race of Australoid-Dravidian affinities, now much altered by Malay admixture. The corresponding Sakai tribes of the Malay Peninsula are much purer in blood. There are a few Negritos in Borneo and Celebes, as in the Malay Peninsula, and some "Negritoids" in Sumatra.

The Malays differ entirely from the Papuans in race. The former are Mongoloid, whereas the latter are related to the Melanesians. The Malay race, which has extended in the west as far as Madagascar, and in the north through the Philippines to Japan, where it undoubtedly forms an important element in a very mixed nation, merges in the East Indian Archipelago insensibly into the Polynesian race of the Pacific on the one hand and into the purely Mongolian races of Siam and Burma on the other. The Malay race, in short, is a link or cross between the Mongolian and the Polynesian. With the Papuans and Melanesians it has no ethnographic relationship whatever, but geographical propinquity has naturally caused the two races to mingle in certain islands. The Malays of Sumatra and Borneo are purer in race than those of Java and Bali, who have a large admixture of Hindu blood. This Indian element is more especially marked in Bali and among the Balinese aristocracy which rules in Lombok, where, however, the native inhabitants, the Sassaks, as they are called, are pure Malays (with a possible slight infiltration of mixed blood from the islands further east). Chinese and Arab settlers in the Archipelago have (except at Makasser, where the Arab type is pronounced), had very little effect in modifying the racial type of the Malays, and though there are many Dutch-Malay half-breeds, especially in Java and at Amboina, the slight European admixture has had no effect at all (as the Eurasians

generally marry Europeans, not natives), except at Amboina. There the Dutch blood mingling with the Malay has produced a good type, which supplies the best native troops to the East Indian army. The Amboinese are Dutch Calvinists in religion, as are also the inhabitants of Boeroe. There is a considerable population of Portuguese descent, especially in the Moluccas, where they are called "Orang Sirani" (*i.e.*, Nasirani, or Christians). They marry among themselves, and so have not influenced the Malays racially at all, but have not preserved their language, talking Malay with a few Portuguese words and expressions. The Christians of the Minahasa, in the north of Celebes, are said to be descended from a colony of Formosans.

Of the early history of the Malays little is known. There appears to have been an original Malay population, called "real Malays," in Sumatra. They lived in the formerly powerful empire of Menangkabo, and spread from there over East Sumatra, Riouw, Malacca, and the coasts of Borneo. This emigration appears to have taken place towards the end of the 12th century; the emigrants met everywhere a race akin to their own—the Malay-Polynesian. All, however, that we know for certain is that when these islands were first visited by Western explorers, the whole of the Archipelago was inhabited by a Malay population. From political and other causes the Malays were divided into numerous groups, which up to the present day maintain their distinctive features. Thus, we find in Sumatra, real Malays, Bataks, Atchinese, and other tribes; in Java and Madoera, Javanese, Sundanese, and Madoerese; in Borneo, Dyaks; in Celebes and the Moluccas, half-Papuan Alfurs; in South Celebes and adjacent islands, Banggainese and Makasserese. Further, there are half-Hindu Balinese, the Sassaks in Lombok, the Sumbanese, Rottinese, Belinese, Buginese and others of more or less mixed Malay-Papuan blood, and the Timorese, who are hardly Malays at all, being predominantly Papuan in racial type. These various groups differ in language, morals, and habits. The different groups are again subdivided into families or branches, each settled on its own particular territory. These sub-divisions, though presenting many striking similarities in some respects, yet differ so much in others that it is often difficult not to classify them as different nationalities. The Dyaks are a striking example of this; they vary so much, even among themselves, that it is impossible to give a general description of the whole race.

The chief outward distinction between the Malay and the Papuan is to be found in the hair, that of the former being straight and lank, and that of the latter woolly, growing on the head in tufts. Nose, mouth, and eyes, as well as hands and feet, vary in the two races, the hands and feet of the Papuans being considerably the larger; the latter have also very large noses, a characteristic by which, in conjunction with his immense mop of hair, the native of New Guinea may easily be recognized.

Character.—The character of the two races is also very different. The Papuan is cheerful, open, and shows an inclination for practical

joking ; the Malay, on the other hand, is distrustful, shy, reserved, and quiet, but easily roused, and then quite ready to stab and murder. To his superiors and to Europeans he is most reserved and respectful—a quality for which he would deserve credit were it not due to want of spirit more than anything else. These remarks do not apply to all Malays, and in common fairness it should be stated that the influence of Europeans on them has been anything but good. It should also be remembered that for years the Javanese have been oppressed ; this has greatly increased their natural timidity. The less civilized Malays of Sumatra, Borneo, &c., are much more manly. In Java the Sundanese are more industrious than the Javanese proper, as the Madoerese are more energetic. The latter are inclined to be turbulent, and are addicted to the use of the *kris* or crooked dagger.

It is difficult to give an accurate general description of the moral and mental qualities of the Malays and Papuans. As a whole they may be described as real children of nature. The Papuans are simpler than the Malays, as the Malays generally are simpler than the Javanese branch of their race. All Malays are thriftless, and fall an easy prey to the wiles of Chinese, Japanese, and Arab merchants, moneylenders, &c. They are not fond of work ; they merely, through necessity, plough and attend to their fields a little. A good deal of the work is left to the women, to enable the men to indulge more freely in their love for cards and dancing. As far as mental capability is concerned, there is not much to choose between the two races ; in neither (with the exception of the Javanese) is it very great. Intercourse with strangers has naturally made some sharper than others.

Description.—The Malays are at present the most highly civilized race in the Archipelago, though formerly there was probably not much difference in this respect between them and the Papuans, judging by the Dyaks in the outlying districts of Borneo and the Hill Alfurs of Celebes, who are Malays. The differences in type, colour, and degree of civilization of the various Malay races in the Archipelago is due to climate and local circumstances, and to the amount of intercourse which has taken place between the Malays and more civilized nations. The Hindus first civilized Java, and the Hindu-Javanese race in their subsequent conquests spread their civilization, more or less, over the islands they visited. The Arabs also settled in the Archipelago, as we know, but their civilizing influence has practically been confined to religious matters. European civilization has affected the native races only superficially. They are at present in much the same state of culture that they were in when the Dutch first visited the Archipelago. From the cultured standpoint, the Malays are generally divided into three classes, though it is difficult to define the exact lines between them. These classes are :—(1.) Civilized :—Javanese, Sundanese, Madoerese, the so-called "real Malays" of Sumatra, Riouw, and Borneo, the Atchinese, Makasserese, Buginese, and Balinese ; (2.) Semi-civilized :—Bataks, Redjangs, Pasumahs, and some other small races ; (3.) Uncivilized :—Dyaks and Alfurs. Almost without

exception, the Dyaks* and Hill Alfurs may be put down as savages, as well as certain other tribes, some of which are not really Malays at all, *i.e.*, the Gayu in Atjeh, the Orang Uwe and Lubu in the government of Sumatra's West Coast, the Abung in the Lampong districts, the Kubu in Palembang, and the Orang Akeh (Sakais) in Siak.

Population.—The results of the latest census give the numbers of the population on the 31st December, 1905, as follows :—

—	Europeans.	Chinese.	Arabs.	Other foreign Orientials.	Natives.	Total.
Java and Madoera ...	64,917	295,193	19,148	2,842	29,715,908	30,098,008
Other possessions ...	15,993	268,256	10,440	20,128	7,304,552†	7,619,369
Total	80,910	563 449	29,588	22,970	37,020,460†	37,717,377†

In 1912 the population of Java and Madoera was estimated at 104,817 Europeans, 351,084 Chinese, Arabs and other non-indigenous Orientials, and 35,577,660 natives; total, 36,035,435. The total population of the Dutch possessions was estimated at 104,817 Europeans, 770,060 Chinese, Arabs and other non-indigenous Orientials, and 46,985,737 natives; total, 47,955,614. The naval and military forces are not included in these statistics.

Status of Natives.—Natives are not eligible for the Dutch Indian Civil Service, nor as yet, except in certain native auxiliary corps and in the honorary sense, as officers in the army. But there is far more intercourse between Dutch and natives than between British and Indians in Hindostan.

Foreigners.—The foreigners in the Dutch Indies belong to various nationalities. Those most numerously represented are Europeans, Japanese, Arabs and other "non-indigenous" Orientials.

Europeans.—By "Europeans" in the official Dutch records are meant not alone Dutch, Germans, British, French, and other inhabitants of Europe and America, but also Japanese‡ and half-castes; these latter are very proud of their European blood, and look down on the pure native, whose characteristics they to a great extent possess. In energy and intellect thay are inferior to the Europeans. Their number is increasing.

* Some of the Dyaks are cannibals, some only occasionally so, contenting themselves with eating the hearts of their dead enemies.

† These totals do not include large portions of Timor and New Guinea, where no census could be taken.

‡ It is interesting to note that it was only in 1900 that the Japanese were classed with Europeans.

In 1916 there were 3,103 Japanese in the Netherlands East Indies, of whom 1,632 were males. These were returned as of the following occupations :—

Miners and other industries...	72
Commerce and transport	168
Public services	31
Other professions	145

No profession or ascertainable calling, remainder.

The true Europeans in the Netherlands Indies are born for the most part in the colonies. Of the total European population, only about 9,000 were born in Holland, whilst about 2,600 come from other European countries; in 1900, there were 1,340 Germans, 200 French, and 420 British. After the South African war a Boer colony was founded at Lembang in Western Java, as planters and farmers. Their numbers are uncertain. Nearly 50 per cent. of the European population are either active or retired Government officials ; 4,400 are planters, and 1,700 are merchants.

Chinese.—Of other foreigners, the Chinese are found in the greatest numbers in the Archipelago. In 1905 they numbered 563,449, of whom 295,193 resided in Java and Madoera. With regard to the outlying possessions, there were, in 1900, 103,700 Chinese on the East Coast of Sumatra, 41,440 in the Western Division of Borneo, and 51,420 in Banka and Billiton.

The Chinese apparently began to settle in the Archipelago in the fifth century, and came chiefly from the Chinese provinces of Fukien and Canton ; they are exceedingly hard-working here as elsewhere. In Borneo, Banka, and Billiton they are chiefly miners, on the East Coast of Sumatra they work on the tobacco plantations, and in the Riouw Archipelago they are principally engaged in the production of gambier and in the cultivation of pepper.

In Java, Madoera, Sumatra, Makasser, and some of the other islands, they are in the first place traders, forming indispensable go-betweens for European trade with the natives, and are officially known as "*de kleine mannen*" ; as a necessary sequence to this they are shopkeepers, cashiers, and sugar-boilers in factories, and follow other similar occupations ; they form also a class of skilled workmen in carpentry and wood-carving in general.

It is only in a few of the principal towns that European shops are to be found. In each of the chief towns there is an officially-appointed Chinese interpreter.

In all towns in Java and elsewhere the obligation for the Chinese to live in their appointed quarters was until recently with few exceptions rigidly enforced. In the chief towns they have at their head a Chinese *towkay* or "major" with "captains" and "lieutenants" under him, and in smaller places a captain with a lieutenant, or, in some cases, a lieutenant alone. This system allows them no influence in the government of the country, in spite of their large numbers, but the appointment of a Chinese member to

the new Volksraad (p. 41) gives them a certain amount of representation in this consultative assembly. The Government is continually harassed by the pertinacious endeavours of the Chinese to live outside the quarters allotted to them, and to obtain greater freedom as regards selling goods in the *desas* (villages) and *pasars* (markets), and thereafter collecting debts, and also as regards buying produce, tobacco, kapok*, hides, &c. In all such matters they act for the European traders, so that the refusal of the Government to allow them greater freedom often acts detrimentally upon trade.

The Chinese are also large rice-traders, and in many cases give considerable advances to natives on the security of their crops; this the Government finds it is impossible to prevent, in spite of its disapproval of the system. The Chinese are heavily taxed.

Only very few of the Chinese at present residing in the Archipelago are pure Chinese (*Sing-Ke*); most of them are the off-spring of mixed marriages between Chinese and natives, and are called "*Baba.*" In the Western Division of Borneo they are called "*Petompang*"; officially they are known as "*Peranakan Tjina.*" Most of the *Singke* reside at Semarang.

When working a mine the Chinese form a co-operative society, which lasts until the mine is worked out; these societies are called "*Kongsis.*" The Kongsis must not be confounded with the "*Huis*" or secret guilds for political purposes; these latter have all sorts of extraordinary names, such as "The guild of heaven and earth," "of the white waterlily," "of the three fingers," &c., and have branches all over the Archipelago. As secret political associations are contrary to the law, these societies have now apparently lost much of their power, but they undoubtedly still exist.

The Chinese still adhere to their national dress (even since the Revolution) and religious observances.

Arabs.—The Arabs have still considerable influence among the Muhammadan population of the Archipelago. The Government, however, takes care that their power does not become too great. Their numbers are small. in 1895 they numbered only 27,430, of whom 18,000 lived in Java and Madoera, and 220 in Palembang. Their dress is peculiar, and different from that of other Muhammadans. In Java and Madoera most of the *panghulus* or cadis are Arabs; these are somewhat equivalent to high priests, and have also certain judicial powers in religious or semi-religious matters; they are distinct from the ordinary Muhammadan priests or mullahs (*imams*). The chief occupation of the Arabs is trade, for which they betray great aptitude, though their honesty is more than open to question. The common saying is that one Arab can outwit two Chinese, and that two Dutchmen are not equal to one Chinaman.

Chinese and Arabs are classed with Sinhalese, Bengalese, and certain other races as oriental foreigners, and have the same legal status as natives. Oriental foreigners are now allowed to move

* Silk cotton.

about freely on the Dutch East Indian possessions; formerly under various regulations they were either confined to certain places or only allowed to move about within certain areas.

Religions.—The religion of the natives in general is a sort of primitive animistic philosophy ("*Antu*"), which not only governs their religious ideas, but also their whole life. It is apparent in the Hinduism of the Balinese and Tenggerese, as well as in the Muhammadanism professed by a large proportion of the inhabitants of Sumatra, by the Javanese (except the Tenggerese) and Makasserese, and by the Bujis of Celebes. The Sakais, Dyaks, and other semi-savage tribes remain pure animists.

The principal feature in this religion is the belief in spirits, some of which rank among them as divinities, and which they worship in proportion to the amount of evil they are believed to be capable of inflicting. Fetish men and magicians also enter into their religious belief, and exercise great influence, more especially among the Dyaks and the Makasserese.

Of the Muhammadan population at the end of 1900, 85,000 are returned as *Hadjis*, *i.e.*, men who have made a pilgrimage to Mecca.

There are a number of missions, both Protestant and Roman Catholic, in the Dutch Indies. It is in Java, where the natives centuries ago embraced Islamism, that the missionary efforts have met with least success, but in some of the other islands a considerable number of converts have been made; this is more especially the case in North Celebes, where the natives belong to the Alfur race (with, it is said, an admixture of Formosan immigrants), nearly the whole population of Minahassa having adopted Christianity. In the Moluccas Christianity has been preached for centuries, and has gained a strong foothold, especially in Amboina, which is Protestant (Calvinist). The people here have a large and ancient admixture of Dutch as well as Portuguese blood. They furnish a large number of men for the army.

Language.—The number of languages in use in the Archipelago is very great; it is said to exceed 100. Within the Dutch possessions alone 60 of these are spoken. This accounts to a great extent for the marked individuality of tribes referred to above. Each Malay tribe has its own language, probably quite unintelligible to any other tribe.

The richest and most cultivated language in the Archipelago is Javanese; Sundanese and Madoerese are also spoken in the island. Javanese is a most highly cultivated tongue. There are two dialects, one of which is used by the nobles and in speaking to those of superior rank, the other by equals and to those of inferior rank. The first, which contains a large proportion of Sanskrit words, is called *Kawi*. The Javanese script is peculiar, and is based on the Indian Devanagari character. Although Dutch is, of course, the official language, and that spoken by Europeans, yet it is very seldom understood by the natives, and its acquisition by them is not encouraged by the Dutch themselves. The most generally known language is Malay, the

two chief dialects of which are Menangkabo and Riouw; to these might be added low Malay—a sort of *lingua franca* used by merchants and traders. This, the actual language of the inhabitants of Batavia and its suburbs, has been adopted for ordinary use between Europeans and their servants, and also in trade. In the chief towns Europeans seldom learn any other native language: small traders, and Europeans who come into direct contact with natives, must, however, speak the language of the district, as the villagers seldom know any other. Malay is written with Arabic characters. Among other native languages may be mentioned Batak, Dyak, Alfur, Makasser, Bangaai, Balinese, Nias, Lampong, Sumbanese and Sasak.

For writing purposes the natives use paper of European or native manufacture, as well as lontar leaves and bamboo.

Among the Dyaks and Alfurs writing is unknown.

CHAPTER IV.

Administration.

Statute for the administration of the Netherlands East Indies.—The Netherlands East Indies are administered under a law called "Reglement op het beleid der Regeering van Nederlandsch-Indië" (Statute for the conduct of the Government of Netherlands India). Naturally the laws under which the Archipelago has been governed have undergone numerous modifications. After 1816 a change became obviously necessary, and in 1830 the then Governor-General, van den Bosch, introduced his code which was, however, not found to fulfil all requirements. After 1840 the Dutch Home Government began to make a more direct interest in the affairs of the colonies, and, after a long struggle, the present code was introduced in 1854.

Supreme Government of the Netherlands East Indies.—The supreme ruler of all the colonies and dependencies is the Sovereign of Holland, who is assisted by a responsible minister called the "Minister of the Colonies." In the Archipelago the Sovereign is represented by the Governor-General. The latter must be a Dutchman, must not be less than 30 years of age, and on assuming office, must swear allegiance, not only to the Sovereign, but also to the statute law of the Netherlands. These oaths are taken, if in Holland, in the presence of the Sovereign; if in the Indies, before a special Committee composed of :—

(*a.*) Those members of the Council of the Netherlands Indies* present in Batavia.
(*b.*) The commanders of the naval and military forces.
(*c.*) The President and Attorney-General of the High Court of Justice.
(*d.*) The directors of the various departments of the administration.
(*e.*) The President of the Audit Office.

The Committee has also the power of appointing as temporary Governor-General (in the absence of the Governor-General and his legal substitute, the Lieutenant-Governor-General) the Vice-President of the Council of the Netherlands Indies. Such action must be at once reported to the Home Government.

The Governor-General is Commander-in-Chief of the Army and Navy, and has the power of appointing and discharging all officers below the rank of major-general. He has the same powers with regard to the civil servants, both European and native, with the exception of the Vice-President and members of the Council of the Netherlands Indies, the President of the High Court of Justice,

* *See* page 41.

and the President and members of the Audit Office, all of whom are appointed and dismissed by the Sovereign. The Governor-General has the right to conclude treaties with native chiefs. He has the right to declare the whole or any part of the Indies to be in a state of war or siege, and to conclude peace. He has the so-called "*recht van gratie*," that is to say, no death sentence can be carried out, in any district administered in the name of the Sovereign of the Netherlands, except under his sign-manual. The Governor-General cannot grant patents of nobility, neither can he give permission for the wearing of foreign orders. The Sovereign of the Netherlands has the right to appoint a Lieutenant-Governor-General, but such appointment is not of necessity made.

The Governor-General is assisted by the General Secretariat, consisting of a Chief Secretary and his staff of four adjutants, one of whom may be a naval officer.

The present Governor-General (1919) is Count J. P. van Limburg-Stirum. He is said to be somewhat pro-German in sympathy, which was to be expected from his antecedents and his connections with the Prussian nobility.

The system of discussing and voting the colonial budget by the States-General in Holland limits to a great extent the apparently independent position of the Governor-General. The ancient prerogative of the Crown in these matters has, in fact, passed to the States-General, who can now, according to the greater or less interest which is taken by that assembly in colonial questions, and in proportion to the greater or less degree of moderation which they impose on themselves, exercise a practically unlimited power over the colonies. Generally speaking, however, the good sense of the chambers has prevented any abuse of their large power, which is in practice limited by want of time, of the necessary knowledge, and of interest in colonial matters, on the part of the majority of the members.

The introduction of the colonial budget, however, facilitates debates on colonial administration, and gives the opportunity, if necessary, of affecting important reforms.

The authority of the States-General in the matter of finance is intended now (1918) to be transferred to the new *Volksraad* or "Peoples Council," which the Governor-General will be obliged to consult in financial matters (*see* below).

Since 1878 the colonies have ceased to contribute to the revenue of the mother country, and the latter has, on the other hand, more than once assisted its dependencies by loans for various purposes.

Council of the Netherlands Indies.—The Council of the Netherlands Indies is the highest court in the Indies. It consists of a vice-president and four members. It was founded when the first Governor-General was appointed. In 1836 it was made into a purely advisory body. In 1854 this was again changed, and the Governor-General is now bound, in certain cases, to summon the Council and to obtain its consent to carry out certain measures. If the Council does not agree with him, the Sovereign's decision must be asked for. The Governor-General can, however, after

submitting the question a second time to the Council and not obtaining its consent, bring the measure into force on his own responsibility pending the Sovereign's decision. The Governor-General can attend the sittings of the Council whenever he likes, and sits as president, but can only advise.

To be a member of the Council it is necessary to be a Dutchman, and over 30 years of age.

Volksraad.—Subsidiary to the Council is the *Volksraad* or "People's Council" of the Netherlands Indies, established in 1918, in pursuance of the policy of admitting the populations, both European and native, to some part in the direction of public affairs. There are 39 members; a president nominated by the Sovereign, 19 members elected by Municipal and District Councils and 19 (14 Europeans) nominated by the Indian Government. Nineteen are Europeans, and 19 natives, of whom 11 are Javanese, the rest, with the exception of two Chinese and one Arab, coming from the outlying possessions. The Council, which is purely consultative (but may lay any matter it pleases before the Sovereign, the States-General, or the Governor-General, and has control over finance, *see* below), has not yet been established long enough for any judgment to be formed as to its capabilities. A number of "Home Rulers," both Dutch and natives, have been elected, and the president of the "Sarikat Islam" (p. 27) has been nominated. The method of election is very conservative, as the electors are solely members of the local councils, of which more than 500 out of the approximate total number 700 are appointed by the Government on the recommendation of the permanent officials. A demand for the use of the Malay language in the *Volksraad* has been passed by 30 votes to 8.

The members of the *Volksraad* in 1918 are given below, with their party allegiance and other description:—

President: Dr. J. C. Koningsbergen.

A.—Elected Members.

Dr. Schumann	...	Independent.
Mr. Gerritsen	...	Java Bank.
Mr. S. Jacob	...	Batavia merchant.
Mr. Bosscha	...	Manager of tea plantation in the Preanger.
Mr. Kettner	...	Head representative of plantations, Sumatra East Coast.
Mr. Stibbe...	...	A Government resident (official).
Mr. Van der Jagt...		Assistant resident.
Mr. Whitlau	...	Assistant resident.
Mr. Labberton	...	Theosophist. "Indië Weerbaar" propagandist and Home Ruler.
Noworoentoe	...	Representative of people of Menado.
Atmodirono	...	Javanese.
A. Kamil ...	...	Moslem.
Sastro Widjono	...	Javanese.
Dr. Radjiman	...	Javanese.

Djajadiningrat ...	Regent of Serang.
Koesoemo Oetojo...	Regent of Japara.
Koesoemo Joeso ...	Regent of Patjidan : formerly an official.
Abdoel Moeis ...	Moslem, member of Sarikat Islam.
Dr. Abdoel Rifai ...	Moslem, member of "Insulinde" Home Rule party.

B.—Nominated Members.

Major Pabst ...	
Dr. Schmutzer ...	Roman Catholic.
Mr. Bergmeijer ...	Anti-revolutionary "christian."
Mr. C. van Voorhout	Head of an iron firm.
Mr. Koning ...	Head representative of the K. Paketvaart Mij.
Mr. Birnie... ...	Administrator of a tobacco estate in Besoeki.
Mr. Stokvis ...	Inspector of Secondary Education.
Mr. Kan	Chinese.
Mr. Lim Pat ...	Chinese. "Major" of Chinese miners in Banka.
Soeselise	Representative of the Amboinese.
Laoh	Representative of the Menadoese.
Mr. Cramer ...	Social Democratic Workmen's party.
Mr. Teeuwen ...	"Insulinde" Home Rule party.
Tjipto Mangrenkoesoemo	"Insulinde" Home Rule party.
Prangwedono ...	Head of Mangkoenegoro.
Tengkoe Tajib of Peureula.	Moslem. Representative of Atjeh.
Muhammad Ismail	Moslem. Representative of the Arabs.
Dwidjosewojo ...	Javanese.
Tjokro Aminoto ...	Moslem. President of Sarikat Islam.

The revolutionary Socialists, Messrs. Sneevliet and Baars, have not been elected, nor has the Eurasian Captain Rhemrev (Indië Weerbaar).

The *Volksraad* holds public sittings at Batavia, but may sit in camera. The Governor-General is obliged to consult it regarding :—

(i.) Estimates and balancing accounts of the East Indies.

(ii.) The use of any credit balance and the covering of any adverse balance in these accounts.

(iii.) The contracting of and guaranteeing of lands by the Government (which is done by virtue of a decree of the Governor-General), but the issue of treasury bills and rates and the raising of money and the produce of Government estates are excepted.

(iv.) Drafts of general advances which lay personal military obligations on the inhabitants.

(v.) Other matters ordained by the Sovereign.

Administrative sub-division.—For purposes of government the Netherlands East Indies are divided into two parts, viz. :—

1. Java and Madoera.
2. The outlying possessions (*Buitenbezittingen*); (these comprise the rest of the Archipelago)

Java is divided into the following 21 administrative residencies :—

Bantam.	Kedoe.
Batavia.	Semarang.
Krawang.	Japara.
Preanger Regencies.	Rembang.
Tjirebon (Cheribon).	Madioen.
Tegal.	Kediri.
Pekalongan.	Soerabaja.
Banjoemas.	Pasoeroean.
Bagelen.	Probolinggo.
Djokjakarta. } Semi-independent	Besoeki.
Soerakarta. } Principalities.	

Madoera Island forms a separate district under the same administration as the above.

The outlying possessions are divided administratively into :—

I.—Three Governments, administered by Governors—

1. Atjeh and dependencies.
2. Sumatra's West Coast.
3. Celebes and dependencies.

II.—Thirteen residencies, administered by residents—

1. Benkoelen.
2. Lampong Districts.
3. Palembang.
4. Sumatra's East Coast.
5. Riouw.
6. Banka.
7. Western Division of Borneo.
8. Southern and Eastern Division of Borneo.
9. Menado.
10. Ternate.
11. Ambon (Amboina).
12. Timor and dependencies.
13. Bali and Lombok.

III.—Two independent assistant residencies administered by assistant residents—

Billiton and South New Guinea.

The division of the Netherlands East Indies into administrative districts is determined by the Sovereign. The Governor-General cannot alter the limits. The districts are under civil administra-

tion, which is always paramount, except in time of war. The districts are governed in the name of the Governor-General by officials called "Heads of Administration," and, with the exception of the residents of Tapanoeli and the Padang Highlands and Lowlands, which form part of Sumatra's West Coast, receive their orders directly from the Governor-General. As military and civil duties so often go hand in hand in the Indies, it has been found convenient to assimilate the rank of governor with that of lieutenant-general, and of resident with that of colonel. Each division is divided into a certain number of smaller or larger districts, each with an assistant resident (who ranks with a major) at its head. In the outlying possessions they are sometimes managed by a controller. These officials are called "Heads of Local Administration."

Native chiefs.—The great principle on which Dutch colonial administration is based is that the natives should be ruled by the Colonial Government through their own chiefs. The Government issues orders to the chiefs, who have to see them carried out. Government either appoints these chiefs or confirms their election by the people.

The highest position to which a native can aspire is that of regent, which more or less corresponds, as far as outward show and state are concerned, with the position of the former native princes. Their titles are based on old local titles. In Java, where there are 70, they are called "*Raden Toemenggoeng*," or "*Raden Adipati*"; in the government of Sumatra's West Coast they are called "*Toeankoe*," "*Raja*," or "*Panghoeloe*" (one of them styles himself "Sultan"); in the Lampong Districts they are "*Demang*"; in Palembang, "*Pangéran*" or "*Dipati*"; in the Moluccas "*Pati*" or "*Orang Kaja*"; in Menado, "*Hukum-besar*"; in South Celebes, "*Karaëng*" or "*Aroeng.*" As a mark of distinction these chiefs carry an umbrella (*payung*), the official position of the bearer being indicated by the arrangement of its colours, and in Menado and the Moluccas a cane with a heavy gold or silver top is carried.

These regents must not be confounded with the native independent princes, who are practically independent rulers. Regents have under them the chiefs of districts and villages; chiefs of districts are called "*Patis*," and this position is often the stepping stone to that of Regent. Regents and "*Patis*" are appointed and paid by the Government; chiefs of villages, called "*Loeras*" or "*Petinggis*," are chosen from time to time by the villagers themselves; the only direct remuneration they receive is a percentage (8 per cent.) on the land tax collected from the natives.

The residents at the courts of the independent princes have practically nothing to do with the administration of the States to which they are attached, or with the native population. They have to see that the treaties made with the Dutch are adhered to, and to take any Europeans or other foreigners under their protection.

Native States.—The position of the several Native States or "Princes' Lands" ("Vorstenlanden"), with regard to the Dutch Government, varies very much. They are divided officially into four categories :—

(i.) Lands held on loan ;
(ii.) " " (hereditary) ;
(iii.) Feudal States ;
(iv.) Allied States ;

to which must be added as a separate class New Guinea.

By "loan lands" are meant those countries whose princes, on ascending the throne, declare that they hold the land on loan from the Dutch Government ; that they will not declare war ; that they will not give away any part of their dominions ; that they will try to put down slavery and piracy, and that they will protect and encourage commerce. Of these States, the more important are Djokjakarta, Soerakarta, Siak, Riouw, Sambas, Landak, Soekadana, Koetei, Pasir, Boné, Ternate, Tidore, and Batjan. The Sultans of the three last-named States also agree to place their military forces—for which they receive an annual grant from the Government—at the disposal of the Dutch in time of war. Very few of the regents are paid by the Government ; a few get compensation for cession of ground to the Dutch Government ; among these are Bengkalis, a small portion of Ternate, Tidore, Batjan and Gillolo.

Hereditary loan lands are Mempawa, Pontianak, Sintang, and a few other small States in the Western Division of Borneo.

The following are allied States* :—Most of the small States in South Celebes (Mandar, Kaili, and others)†, Tontoli, Boetan, the small States of Soembawa, and some of those of Timor.

Government departments—The civil administration of the country is carried out by different departments, of which there are five, viz. :—Department of Justice, Department of the Interior, Department of the Army and Navy, Department of Instruction, Religion and Industry, Department of Public Works, and Department of Finance. At the head of each Department is a Director. The Governor-General can, as often as he thinks it necessary, summon a council of Directors.

The Control Department and Audit Office is an independent department of the State and consists of a president and six members. All proposed expenditure has to be submitted to it. The basis of expenditure is the Indian budget, which lays down the maximum sum to be expended under each head. The budget is passed annually by the Dutch States-General. The Governor-General has, however, the power, subject to the subsequent approval of the Home Government, of spending money in excess of the budget in case of emergency.

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* Official books, while separating the four categories, do not define the difference between allied and feudal States.

† Gowa is now (1918) directly administered.

For financial purposes the East Indies are divided into six districts, each under an "Inspector of Finances," assisted by five assistant inspectors. These inspectors reside at Batavia, Semarang, Soerabaja, Pasoeroean, Padang, and Makasser.

Justice.—The administration of justice in the Dutch Indies may be divided into four heads :—

1st.—Laws applicable to Europeans (and those having status as such), based on the laws of the Netherlands.

2nd.—Laws for the natives ; these are based, as far as possible, on the religion and traditions of the districts in which they apply, provided they are not in conflict with the recognized elementary European principles of justice and equity. The Governor-General has the power of making some of the laws under the preceding heading applicable to the natives.

3rd.—The laws of the Native States, *i.e.*, those States not directly administered in the name of the Sovereign of Holland.

4th.—Military law.

The laws are administered under the supervision of the High Court of Justice at Batavia. This consists of one president, three assistant presidents, eleven councillors, one attorney-general, three advocates-general, one recorder, and three assistant recorders. The High Court is divided into four chambers ; the first chamber has five members, the second four, the third and fourth three members each. The High Court takes cognisance of offences by all high State officials, with the exception of the Governor-General, who can only be tried by the High Court of the Netherlands.

The ordinary court to which the European appeals and is summoned to attend is the Council of Justice. Such councils or courts are at present established in Batavia, Semarang, Soerabaja, Padang, and Makasser. In Java these courts are composed of a president (in Batavia and Semarang there is also a vice-president), four or six members, an officer of justice with a few assistants, and a recorder with a few assistants—all Dutch lawyers. In the outlying possessions the courts are somewhat smaller.

In addition to Europeans, these courts try native princes and chiefs.

Residency—in some places called magistrates'—courts are established in all capitals of residencies and assistant residencies. The head of the civil service of the place used formerly to sit as judge ; now, however, special magistrates have been appointed. These courts can deal with Europeans to a certain extent, but they are specially intended to protect the native against European oppression.

Residency councils.—There is yet another form of legal tribunal, viz., residency councils ; these are established in Bengkalis and Deli, and also, with somewhat more extended powers, in Djokjakarta and Soerakarta. The resident is president, assisted by some European officials. They deal solely with native judicial questions.

Tribunals for natives.—There is a special legal code for natives. To enable the judges to arrive at correct conclusions, they are assisted by certain natives, who are versed in the religious code and in the customs of the district. In Muhammadan districts the *panghoeloe* (Muhammadan priest) is invariably the adviser.

A county court is established in the capital of each residency and district. Formerly the residents presided, but this system has now been changed, and judges and warders have been appointed to each court.

Circuits consist of two judges, at least four natives of high position and intelligence, the chief *panghoeloe*, and the chief *djaksa.** Originally there were six circuits established in Java, Madoera, and Makasser. These are gradually to be abolished, as qualified judges are appointed to all the county courts. This has already been done in East Java and Celebes.

In the outlying possessions there are other courts having much the same powers and composition, such as the "*rapats*" in Sumatra's West Coast, the "*musapats*" in Atjeh, "*proatins*" in the Lampong Districts, and a few others.

There is one court peculiar to Djokjakarta. The resident is president; he is assisted by a secretary and some other officials. An official, called "*Hiti Raja*," represents the native government. This court tries all criminal cases among the Sultan's subjects, but members of the Sultan's family do not come within its jurisdiction.

In Djokjakarta and Soerakarta there are three further forms of tribunals:—

1. "*Kadipaten*" (called "*Balemongoe*" in Djokjakarta), consisting of princes and notables named by the prince. This court only settles disputes between members of the royal family.
2. "*Soerambe*," or council of priests, so called because it meets at the door of the great mosque. This tribunal decides questions appertaining to the Muhammadan law.
3. "*Predata.*" These administer ordinary law.

The Dutch Government exercises a certain supervision, but allows these three tribunals a free hand as far as possible.

Most of the various independent tribes have their own peculiar form of administering justice.

Finance and Budget.—The local revenue is derived from land, taxes on houses and estates, from licences, custom duties, the Government monopolies of salt and opium, railways, mines, &c., and from a number of indirect taxes.

The Dutch East India Company did not trouble itself much about the welfare of the natives (*see* pp. 17, 18); all it cared about was trade. It contented itself with levying from the native chiefs a tribute in kind on such articles of produce as found a good

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* Native judicial official.

market in Europe. This eventually led to the system of Government monopolies, *i.e.*, the producers were obliged to sell all their produce to Government; the Dutch even went so far as to compel the natives under the culture-system to cultivate only such products as were required for export to Europe. This was specially the case with coffee in Java, where the entire produce was brought down by the natives to the Government stores. By 1870 the majority of the Government monopolies had been abolished, but a few still remain.

The most profitable Government trade is now that in opium, but used to be that in coffee. The cultivation of the latter is obligatory in Java (with the exception of the four residencies of Bantam, Japara, Krawang, and Rembang) and in Sumatra's West Coast. There are also numerous private coffee plantations.

The cultivation of opium in the Dutch East Indies is prohibited, and the Government reserves to itself the sole right of importation. The drug thus imported is sold by Government at a large profit to Chinese contractors (*pachters*), who retail it to the natives in the numerous opium dens (*kitten*). This system has been subjected to severe criticism, both on the question of the principle of Government encouragement of the vice of opium smoking, and also because the Chinese contractors are believed to increase their profits by smuggling and by adulterating the drug. Moreover, attempts to suppress the smuggling involved considerable expenditure without corresponding results, and it was found that increased stringency in the supervision of the contractors re-acted upon the Government in a diminution of the contract price obtainable for the drug.

The Government therefore decided to experiment with a "Regie," *i.e.*, selling the drug direct to the natives, and in 1894 erected the necessary plant for a small trial. The results both in Madoera and Besoeki Residency were such as to indicate that the new arrangement would not only work well, but would be financially successful, and now the three adjoining Residencies, Probolinggo, Pasoeroean, and Soerabaja, have been included in the Regie, and others will no doubt follow.

The salt monopoly is another great source of Government revenue. Private persons are not allowed to make salt in the districts where the monopoly is in force (Java and Madoera, Sumatra's West Coast, Benkoelen, Lampong Districts, Palembang, Banka, Billiton, and the Western, and Southern and Eastern Divisions of Borneo). The Government salt-works are in Madoera; the salt costs Government 16*s.* 8*d.* a *kodjan* (=30 *pikols*=4,080 lbs.). The average selling price, which varies in different districts, is 10*s.* 2*d.* per *pikol*.

The transport expenses on Government account have always been very heavy; the salt was formerly transported in bulk, a system which led to a good deal of peculation on the part of minor officials, as in this form loss of weight during transit was very difficult to control. A change has now been made, and salt is made up into briquettes.

The revenue and expenditure of the Dutch East Indies for the past few years are as follows. These sums include revenue and expenditure in Holland as well as those in the East Indies.

	Revenue.	Expenditure.	
	£	£	
1912... ...	22,550,000	22,416,000	
1913... ...	25,959,300	27,258,300	
1914... ...	23,291,600	28,630,000	
1915... ...	25,416,000	28,075,000	
1916... ...	31,168,000	31,168,000	Estimates.
1917... ...	34,015,833	34,015,833	Estimates.

The principal items of receipt in 1915 were approximately as follows :—

Receipts in the Netherlands.

	£
Sale of coffee	206,750
Sale of Banka tin	1,630,000 (1914).

Receipts in the Netherlands East Indies.

	£
Sale of opium	2,103,250
Sale of Ombilin coal	336,072
Sale of coffee	87,583
Sale of salt	1,166,740
Import, export, and excise duties ...	3,139,126
Land revenues, &c.	1,674,750
Income tax	1,169,470
Railways	1,464,500
Posts	552,833 (1912).

Other profitable sources of revenue are the profits derived from the sale of cinchona-bark (quinine), rubber, and teak (*djati*) from the State forests, from the Government pawnshops, &c.

About one-third of the annual expenditure is on the army and navy, and another third is devoted to the general administration, both in the colonies and in the Netherlands.

The annual budget is discussed and voted by the States-General in Holland (in future this will be done by the Volksraad *see* page 41).

Java Bank.—The "Java Bank" has a capital of £500,000 and a reserve of about £10,000. The Government has a control over its administration. Two-fifths of the amount of the notes, assignates and credits must be covered by specie or bullion. In 1916, the value of the notes in circulation was £12,073,500 and of the capital engaged £6,490,166. There are two other Dutch banks, besides branches of British banks.

In the postal savings banks, there were, in 1915, 130,909 depositors, with deposits amounting to about £600,000.

CHAPTER V.

Resources.

Agriculture.—*Summary.*—The two following paragraphs, taken from "Commercial Geography,"* summarize concisely the agricultural resources of the Netherlands East Indies. The various items will be dealt with separately and in greater detail in the course of this chapter.

"The pearl of the whole archipelago is Java, the most densely populated land near the equator. All the lowlands and the mountain sides to a high elevation have been turned into gardens. Rice, sugar-cane and tobacco are raised on the lower lands. Java has been the largest producer of sugar-cane only since the Cuban insurrection of 1895. In the middle zone are the coffee plantations, Java coffee being exported to all parts of the world. Still higher are the tea plantations, which yield about 10,000,000 lbs. a year. Java is also the largest producer of cinchona bark (quinine). Its oil wells are reducing the imports of kerosene and supplying a part of the eastern market. Little of its cotton (about 2,500,000 lbs. a year) is exported.

"The products of Sumatra are similar to those of Java, except that it raises a larger quantity of tobacco, its chief export, of which £800,000 worth a year is sent to the United States. Black pepper and gutta-percha are also important exports. The little islands, Banka and Billiton, are among the large sources of tin. Dutch Borneo has considerable trade in gutta-percha and gold, but its resources are mostly undeveloped. Spices are a large export from the Moluccas or Spice Islands; nearly all the nutmegs in trade come from the nutmeg gardens of Lontar, the largest island in the Banda group. Celebes has little part in foreign commerce, except that the port of Makasser, the chief town, is a forwarding port for all the commodities, mostly bêche-de-mer,† pearl-shell, tortoise-shell, bird-of-paradise feathers, and spices from the eastern Dutch islands. A number of the smaller Dutch islands have considerable trade in coffee, cocoa and spices. The port of Batavia, in Java, is the commercial centre through which the larger part of the exports, most of them sent to the Netherlands, are forwarded."

In Java naturally the preponderating interest is Dutch, but in Sumatra British interests are very important also, and far outweigh those of any other foreign nation. This is no doubt largely due to the propinquity of the British Malay States and Colonies. For the same reason British interests are chiefly confined to the east coast. There are no British firms on the north or west coasts, all the firms there being Dutch, and (on the west coast) German.

* "A Text-book of Commercial Geography," by Cyrus C. Adams.

† A sea slug of the East Indies, whose dried flesh is esteemed by the Chinese in their soups.

A large amount of British capital has been invested of late years in Sumatra, chiefly in the cultivation of rubber. A certain number of tobacco, tea, and coffee estates have been acquired, and are under British control. German interests, chiefly represented on the west coast, are small, and have not increased at all proportionately to those of British investors. The amount of capital invested at the end of 1910 in rubber alone was estimated to be as follows :—British, £4,000,000 ; German, £2,100,000 ; Belgian, £550,000 ; miscellaneous, £200,000. More capital is required in Sumatra, and although concessions are granted very guardedly, the influx of British capital is popular.

Rice.—Rice being the staple food of the country, enormous quantities of it are needed and produced for the inhabitants, and the harvest may be estimated at an average of about 6,000,000 tons per annum. Very little is exported ; in fact, in some years, owing to partial failure of crops, as much as half a million tons has been imported.

The figures for the three years, 1914–16, are :—

1914—216,000 tons imported.
1915—334,000 „
1916—397,000 „

Those of 1917 are not yet available, but as the 1917 crop was very poor, the importation figure will probably be large, if tonnage can be obtained. It is proposed to convert many sugar-cane fields into *sawahs*, but this is not easily to be effected.

The varieties of rice grown in the irrigated lower lands (*sawahs*) are different to those grown in the non-irrigated land (*tegàls*).

The Preanger Regencies produce about twice as much rice (about 930,000 tons) as any other regency of Java.

The wholesale price of rice averages about 10*s.* per *pikol* of 136 lbs.

The natural fertility of the soil of the low-lying lands, especially in Java, is developed to the utmost, both by the industry of the population, which is essentially an agricultural one, and by the perfection to which the system of artificial irrigation has been brought.

Extensive valleys and mountain sides are terraced and levelled in steps, and water is carried from the mountain streams, so that every plot can be flooded or dried at pleasure.

Many of these terraced lands are of great antiquity, but they are continually being extended, and they enable the ground to produce a constant succession of crops all the year round and year after year without manure, because the fertilising matter, held in solution and suspension by the streams, is deposited upon the land instead of being carried out to sea and wasted.

Sugar.—The cultivation of sugar has in the last 20 years, since the industry was freed from the leading strings of a Government monopoly, under which it had been carefully fostered till it had become a necessity for the native cultivator, made gigantic pro-

gress year by year till the export reached 1,300,000 tons, of which Soerabaja and Pasoeroean produce one-third. The Java sugar industry receives no bounty from Government, and therefore enjoys special advantages in the United States, which take the bulk of the crop. So far from receiving any bounty, the trade was burdened with an export duty which was only abolished a few years ago, while of other fiscal burdens it has still to bear its full share.

A disease called *Sereh*, which is not yet properly understood, has for more than 10 years threatened the industry with destruction, but improvements in cultivation, in manufacture, and in planting material (imported descriptions and seed-canes) have been freely studied and introduced, so that the industry seems to be on a sound footing; especially in scientific and mechanical improvements has Java kept well abreast of the times.

A disease in the roots and root-end (*dongkellan*) of the cane-stick has spread a good deal during late years; it is as mysterious in its incipience and development as *Sereh*, but unlike the latter, which began in the west and spread east, the *dongkellan-ziekte* appeared first in the east of the island. No remedy has yet been discovered. A scientific commission has been appointed by the two scientific laboratories, which are entirely supported by the sugar industry.

A very large quantity of a soft yellowish cane is grown by the natives for chewing, while in some districts "Cheribon" cane (a purple or purple-striped variety) is largely grown by them and ground off in the fields in small buffalo mills, the product being turned out in small saucer-like cakes.

In Java there are about 140 sugar factories, and about 200,000 acres of land under sugar cultivation.

The price of sugar in Java in 1917 was 16 gulden (£1 6*s.* 8*d.*) the *pikol* (136 lbs.).

Tobacco.—Tobacco is grown all over the Archipelago. The best comes from Deli in Sumatra. Of Java tobacco that from Besoeki is the best. East Indian tobacco is largely used as "fillings" for a Havana outside leaf; a great amount is also consumed locally, being smoked by the men in the form of "*strootjes*" (a sort of cigar covered with straw), and chewed by the women.

Java produces about 26,000 tons of tobacco annually; Sumatra, 210,000; and Dutch Borneo 250 tons.

In 1912, the tobacco from the East Indies sold in Holland fetched 84,000,000 gulden (£7,000,000).

Coffee.—Coffee is now the sole remaining Government compulsory culture, and there are about 288,000 families who are employed by Government in tending some 66,000,000 plants. In addition to the compulsory Government plantations there are a number owned by Europeans and by natives, but they are obliged to dispose of their produce to Government at a fixed rate.

Since 1880, in which year the leaf disease first made its appearance, the Government has encouraged the cultivation of

Liberian coffee, which is not so much affected by the disease, and this sort is now chiefly grown in West Java. The prices of Liberian coffee, however, rule generally low as compared to Arabian coffee.

The best coffee is grown at altitudes of between 2,000 and 3,000 feet.

Java, the west coast of Sumatra, and Celebes produce the finest quality. Coffee is one of the chief sources of revenue of the Netherlands East Indian Government.

The crop is very variable, and very few coffee companies in Java paid dividends on the 1902 crop. Sumatra suffered less.

The annual production of coffee is approximately as follows, in lbs. avoirdupois ;—

	Government produce.	Private produce.
Java	12,000,000 to 30,000,000	520,000
Sumatra	4,600,000	2,000,000
Celebes	Nil	400,000

For the amount of revenue derived from the sale of Government coffee, (*see* page 49).

Tea.—Tea cultivation is a growing industry and answers very well, notwithstanding the poor price fetched by that commodity. About 10,000,000 lbs. are produced in Java annually, of which over five-sixths come from the Preanger Regencies. Very little tea is grown in the possessions outside Java,. Over £580,000 worth of East Indian tea was sold in Holland in 1912.

Quinine (*Cinchona bark*).—There are eight Government estates in Preanger, and about 80 private estates elsewhere in the Dutch East Indies. The former produce about 1,600,000 lbs. annually, the latter about 12,000,000 lbs. Some estates pay as much as 30 per cent dividend. The quinine sold in the Dutch market in 1912 realized over £660,000.

Copra.—In 1917 Java and Madoera were estimated to export 75,000 tons of copra per annum. The mills crush 30,000 tons per annum, and the native population consumes 200,000 tons per annum, which they appear to manufacture themselves. The total production of the two islands would appear to be about 275,000 tons per annum.

Kapok.—A very important article of export, especially to Holland, Australia, and the United States, is *kapok*, a downy substance extracted from the pods of the *Eriodendron anfractuosum*. It is used for filling mattresses and pillows, and for stuffing aviators' clothing and helmets, &c. For the latter purpose it is much used by the Germans, who seem to get it from Holland. The tree is chiefly grown in Java. Before the war about 100,000 bales were exported annually ; 30,000 bales to Holland, 30,000 to Australia and New Zealand, 15,000 to America, while the rest goes to the other Dutch islands.

Rubber.—(*See* page 51.) The total production in 1915 of Java and Madoera was 7,047,266 kg., and of Sumatra, Borneo, &c., 8,810,345 kg. In 1914, 2,878,676 kg. of rubber were imported into Holland.

Other products.—Indigo is grown to the extent of about 1,000,000 lbs. per annum: most of it is exported to Japan. Cotton is grown to a small extent in Java and Palembang. Pepper is chiefly produced in East Sumatra and in the Riouw Archipelago. Indian corn is much used for food by the Madurese, and is cultivated on the paddy-fields during the dry monsoon. Sweet potatoes are common, and European vegetables are largely grown in the high-lying districts. Cocoa is cultivated in Menado, Amboina, and Bali, as well as in Java.

Amongst other productions may be mentioned coconut trees, which are common in the low-lying districts. In 1917 Java and Madoera were estimated to possess 30,000,000 coconut trees bearing and 20,000,000 not yet bearing fruit. The areng palm is also common; in Sumatra it is called "*arau*," or wine palm. A liquid, capable of being fermented, and which is used as a drink, is obtained from it in Celebes and the Moluccas, and in Java sugar is prepared from it. Betel is found in most of the islands and red pepper all over the Archipelago, whilst areca nut is common on the north coast of Sumatra.

In all parts of the Archipelago the native houses are built of bamboo, and indeed even in towns bamboos are more frequently used than bricks; on estates in the hills no bricks are available. Bamboos are used for many other purposes, such as for the construction of sheds and railings (*paggers*), and for the manufacture of many light articles of daily use. There are many different varieties of bamboo, some, light and straight, used for main posts in houses and sheds; others, large and strong, with thick rind, used for poles for ox-carts, also for *picolans* (yokes for carrying weights on the shoulder); another, smaller but strong and easily worked, used for baskets, railings, and sundry household articles; other varieties, thin, straight and strong, are used for broom handles, &c., and one, a thin, light pole, is used in tobacco sheds to form rails upon which to hang the leaves to dry.

Rattan canes come from Padang and Bandjermasin (*i.e.*, Sumatra and Borneo). In Bali and Java a grass called "*alang-alang*," which grows freely on any waste grounds, is used for thatching; from Borneo comes "*kajang*," which is used for the same purpose. This is made from the leaves of the "*gebang*," a low-growing palm, which like the Areng, Sadeng, Nipa and Atap, has leaves split like cocoa palms. An inferior variety of this palm grows on the south coast of Java. One of the most characteristic trees of Java, the *waringin*, is often seen growing in avenues along the roads. The Archipelago is rich in forests, containing most valuable trees. The output of Java teak (*djati*) amounts to about 5,000,000 cubic feet per annum, and about 265,000 acres are under cultivation. Large quantities are used locally for railway sleepers, and most of the remainder is exported to South Africa and British

India. The "*kayubesi*" (iron-wood) grows in Borneo and in the Palembang forests in Sumatra. The forests outside Java and Madoera are not administered by the Government, and it is only of late years that a proper forest service has been introduced into these islands.

Flowers and fruits abound. Of the flowers, the *Victoria regia*, queen of water-lilies, and the splendid *Rafflesia*, which grows as a parasite on trees, are the best known. The most common fruits are the banana, mangosteen, lime, orange, pummeloe, durian, langsat and jack fruit. Pineapples, melons and mangoes are plentiful. The durian has a most horrible and disgusting smell, but is said by those who can put up with this to be the most delicious fruit in the world. It has a hard and spiky rind, and has an unpleasant habit of falling without warning from the tree, sometimes causing the death of any person whom it may happen to strike. It is about the size of a melon.

The whole of the Government produce, which is sent to Europe for sale, is exported by the Netherlands Trading Company, which is a private company and transacts a considerable business apart from that derived from Government. A Government official has always a seat on the Board of the Company.

MINERALS.—*Coal.*—The chief coal-mines are at Ombilin, in Sumatra, and produce over 200,000 tons per annum. Newly discovered measures at Moera Enim, near Palembang, are reported to be valuable, and the coal is smokeless. There are also coal-deposits worked on the Mahakam and at Berouw in Borneo, and at Soekaboemi in Java. This coal is inferior to that of Ombilin. Coal also exists in many other places, as at Siboekoe, where there s a British concession, but is not worked to anv great extent.

The Ombilin fields are on the river of that name in the Padang Highlands. They cover a large area, and lie alongside the river, about 300 feet above which the coal crops out. Only the southern portion of the field is worked at present. The coal lies in three parallel seams, the thickest of which runs from 18 to 24 feet in thickness.

The coal is hauled down to the railway on a light line in bullock-trollies. The trucks on which it is then loaded deliver it direct on board ship at Emma Haven. The mines are worked by Chinese piece-work men and by Malay convicts.

Though the quality of the coal is indifferent, and special precautions are necessary when it is used on board ship, the output is increasing steadily. The mines at Ombilin all belong to the Government.

Tin.—Most of the tin comes from Banka and Billiton, the shipments of Government and private tin amounting on the average annually to about 15,000 and 4,000 tons respectively. In 1915 the total production of Government tin was 219,216 *picols* (13,309 tons 11 cwt.). The total value of East Indian tin, from both Government and private sources, sold in Holland in 1912 amounted to over £330,000. Three concessions have also been granted for tin-mining in East Borneo.

Gold.—About 2,400 lbs. weight of gold is produced annually, the Redjang Lebong mine (on the west coast of Sumatra), one of the richest in the world, being the most productive. There are other mines at Padang and near Fort de Kock.

Other Minerals.—Silver, platinum, lead, antimony and copper (this in Java) are also mined on a small scale ; iron is found in Siboekoe, and there are rich deposits of aluminium, nickel and iron ores in Celebes as yet unworked. Mining concessions have more than once been applied for on behalf of foreigners, but have not been granted.

Salt.—*See* page 48.

Petroleum.—The Tarakan oilfields in Borneo can produce about 1,000 tons a day. It is the most viscous mineral oil in the world. Another important Bornean oilfield, and one of the most important sources of petroleum in the world (especially for the manufacture of toluol), are the wells on the Mahakam River, 50 miles from the port of Balikpapan in south-east Borneo (*see* page 101). In Sumatra a well has recently been bored at Poelo-Samboe which produces 1,000,000 litres of oil a day. In Sumatra Pangkalan Soesoe has become the port where tank steamers load the oil. A pipe line runs from Pangkalan Brandan to Pangkalan Soesoe. The chief concession is at Moera Enim, in the Sumatra's East Coast Residency. From this place the crude oil is conveyed by a pipe-line nearly 80 miles in length to the refinery near Palembang. Petroleum is exported both in its crude form and in the numerous forms of by-product (gasoline, asphalt, &c.), which are the outcome of its refining. A large quantity of the residue is consumed in the form of liquid fuel by steamers trading in the Dutch East Indies. At Tandjong Priok a 4,000-gallon tank has been erected for its storage ; this tank is connected with the harbour by a 6-inch pipe, so that the oil may be pumped straight into the bunkers of steamers lying alongside the coal wharf. In Java petroleum is being worked on about 30 concessions. The chief Javan wells are at Tepoe, 30 miles south of Semarang. The product is mostly consumed on the island.

The total production of oil in 1917 was 1,687,591 tons, as against 1,678,839 tons in 1916. There was a warehousing capacity for 786,900 tons. The price of crude oil in 1918 was 40 gulden per ton.

Mining Concessions.—For mining purposes, a concession is required, either from the Government, or from the native chief where independent rule is permitted. At first an "Exploration" permit is granted, generally for a term of five years, and this has been, in fact, readily given to the first comer ; afterwards, a definite "Exploitation" permit is granted if desired. A very great number of such permits, almost all of which have been continued as exploitation companies, have been granted during the last five years to mine for petroleum, coal, gold, silver, copper, and tin in Java, Celebes, Borneo and Sumatra, except the independent Batak lands ; other islands have not been thrown open, Government control not being sufficiently definite to provide the necessary

security for explorers or workers. For the exploring, as well as for the exploiting work, English, Scotch and Australian mining engineers have been in great request, and although in some instances Dutch engineers have had some success, the foreign element is much preferred. In petroleum boring outside Java itself, Canadian borers have found employment.

INDUSTRIES.—In 1902 the following industrial establishments were working:—Printing presses, 67 (11 at Batavia and 11 at Soerabaja); mineral water and ice factories, 79 (8 at Batavia and 12 at Soerabaja); soap factories, 18; arrack distilleries, 6; saw-mills, 15; rice-mills, 99 (42 in Batavia Residency and 39 in Preanger).

In addition to the above, which are chiefly under European management, a large number of industries are followed by the Chinese, in many of which they have practically the monopoly, and in all the larger towns are to be found Chinese carpenters, furniture makers, masons, painters, blacksmiths, shoemakers and tailors. There are comparatively few European artisans in Java, as they find it impossible to compete with the cheap labour and long hours of the Chinaman.

The Javanese are essentially agricultural, and do not attempt to compete in any other pursuit.

LIVE STOCK.—The number of large live stock existing in Java in 1900 is estimated in the Colonial Report as follows. The previous 10 years show no great variation:—

Buffalo	...	...	...	2,436,000
Cattle	...	...	...	2,655,000
Horses	...	...	...	418,400

Sheep are not bred in Java.

The Government stallions (of which there were 37) in Preanger bred 1,028 foals in 1902. There were then 48 brood mares belonging to the Government. These are lent to natives of position, but the conditions attached to the disposal of their produce is not known.

Government stallions are to be stationed in Pasoeroean; in Krawang such stallions covered 72 mares in the last half of 1902.

There is a small Government horse-breeding establishment at Pajakoembo.

Fourteen horse-shows which were held in Preanger in 1902 brought out nearly 4,200 horses for competition.

The Javanese horses are smaller, and on the whole show less breeding, than those coming from Sumatra or Celebes. Their average height is about 12 hands. Within the last few years the Colonial Government has taken steps to improve the breed by crossing them with Sandalwoods and Makassers, and this has been so far successful that Javanese ponies are now bought in considerable numbers for remounts, whereas formerly they were seldom used for army purposes. The best class of horses in Java are found in the Preanger and Kedoe Regencies, although the number bred

in the latter residency is now very small. Horses are hardly ever employed for agricultural purposes, their place being taken by buffaloes, as in India.

Wild animals.—Among the large wild animals are the rhinoceros, tiger, leopard, wild boar and deer. Sharks and crocodiles abound along the coasts and in the rivers.

TRANSPORT.—The principal means of transport are, on the rivers, *prauws*; on the roads, two-wheeled wooden carts with or without bamboo coverings, drawn by ponies, bullocks, or buffaloes. A light two-wheeled spring-cart is also used by Europeans and natives when travelling.

Loads are carried by coolies, slung at each end of a piece of split bamboo which rests on the shoulder.

The pre-war prices of horses, cattle, &c., were as follows :—

Horses (Australian)	£30 to £40
Ponies (native)	£6 to £12
Very serviceable for carts and very hardy.	
Ponies (Soembawa or Makasser)	£16 to £25
More showy, but not hardier than native breed; useful for carriage or riding ponies.	
Buffaloes	£4 to £6
Oxen or cows	£7 to £9
Carts	£6 to £8

LABOUR.—In Java, where the Crown is the landlord of the greater part of the island, which is practically a Government farm, the "Culture system" (*see* page 59) still survives in a modified form to the present day. By this system were established the greater part of the numerous plantations of coffee, sugar, tobacco, tea, pepper and other products which cover the island. Of these, coffee alone is now thus grown, and even here the "system" has been considerably modified, no person being required to plant more than 50 trees annually, and the labourers no longer being called out *en masse*. For road repair, however, and various other minor duties, the system of *Heerendiensten* or occasional paid compulsory service is still in force.

Field labour is in general cheap and plentiful, except in the neighbourhood of the large towns. During the season when the rice-fields are being planted (from September to January) labour is more scarce than at other periods of the year, as this occupation withdraws a large percentage of the population from other employments. Occasionally Chinese coolies have been imported for extensive engineering works, such as the Batavia

Harbour Works, where large numbers of labourers were required, but it has not proved satisfactory and is consequently discouraged.

Since the introduction of the Agrarian Law in 1870, by which individuals were empowered to acquire waste lands on hereditary lease for 75 years, private agriculture has greatly increased, more especially in the residencies in the west of Java. The private landowners can enforce one day's gratuitous labour out of seven from all the labourers on their estates.

The daily pay of a workman runs from 10*d.* to 2*s.*, that of a coolie from 3*d.* to 1*s.* 3*d.*

Culture system.—The "culture system," which has so largely contributed to the prosperity of Java, consists in the development of the old native custom whereby the ownership of the land was vested in the Prince and the usufruct in the cultivator, the latter paying to the former one-fifth of the produce. The system was based upon the plan of excluding Europeans and making the island a Government farm, and aimed at bringing the most scientific farming to bear upon the most remunerative products, and at utilizing as much of the peasants' time and labour as was not needed for the cultivation of his necessary breadstuffs. A fixed rate of wages was paid to the labourers engaged in clearing the ground and forming the plantations, and the produce was bought by Government at a fixed price. This money, after the deduction of a certain percentage for the chiefs, was divided among the labourers, the sum in good years being considerable.

CHAPTER VI.

COMMUNICATIONS.

RAILWAYS.—The only railways in the Netherlands East Indies are those in Java and Sumatra.

The communications in Java are clearly shown in the map of of Java and Madoera, to be found in the pocket at the end of the book.

At the end of 1915, 3,238 km. of Government railways were working in Java, as well as 210 km. of private lines.

In Sumatra's West Coast there were 245 km. of Government lines, and in Sumatra's East Coast 95 km. of private lines.

The number of employés in 1903 was, 1,278 Europeans and 1,704 natives in Java, and 92 Europeans and 211 natives in Sumatra.

The first railway in the Dutch Indies was the line from Batavia to Buitenzorg, opened in January, 1873.

Lines in Java.—The following are the principal railways of Java, commencing from the west :—

1. Anjer (on the Sunda straits), Bantam, Serang, Rangkasbitoeng, Weltevreden, Batavia.
2. Laboean—Rangkasbitoeng.
3. Tangerang—Batavia.
4. Batavia — Weltevreden —Meester Cornelis—Buitenzorg—Soekaboemi—Tjiandjoer—Tjipadalarang — Tjimahi — Bandoeng—Tjitjalengka—Tjibatoe—(branch to Garoet)—Malangbong—Tjiamis—Maos—Tjilatjap (a branch line)—Koetoardjo—Djokjakarta.
5. Batavia — Weltevreden — Meester Cornelis — Bekasi — Krawang—Tjikanpek—Poerwakarta—Tjipadalarang.
6. Tjikanpek—Cheribon.
7. Malangbong—Kadipaten.
8. Koetoardjo—Poerworedjo (to be continued to Ambarawa *vid* Magelang).
9. Ambarawa—Kedoengdjati.
10. Djokjakarta — Soerakarta — Goendih — Kedoengdjati — Semarang.
11. Soerakarta—Madioen—Kertosono—Tarik—Soerabaja.
12. Tarik—Sidoardjo.
13. Soerabaja — Sidoardjo — Bangil — Pasoeroean — Probolinggo—Klakah—Adjoeng—Banjoewangi.
14. —Adjoeng—Sitoebondo—Panaroekan.
15. Klakah—Pasirian.
16. Bangil — Malang — Blitar — Toeloenggagoeng — Kediri—Kertosono.

Work has been commenced on a railway which is to run from Cheribon to Maos, *vid* Margasari, Toegoeran and Kroja, thus forming an important link between the north and south coasts (the section Cheribon—Margasari—Toegoeran—Kroja is provisionally open as a secondary line); and also on a section of the line from Tjibadak (near Soekaboemi) to Sasaksaät, a stopping place between Poerwakarta and Tjipadalarang; this line is intended as a deviation so as to avoid the steep gradients between Tjibadak and Tjipadalarang. Money has also been granted for surveying a line from Tjibadak to Wynkoops Bay, and plans have been prepared for a line from Serang to Tjiamas.

Lines in Sumatra.—The railways of Sumatra are as follows:—

Emma Haven—Padang—Loeboek Aloeng—Padang Pandjang—Solok—Sawa Loento (Ombilin coalfields).

Loeboek Aloeng—Periaman.

Padang Pandjang—Fort-de Kock—Pajakoembo.

Medan—Pangkalan Brandan; branch to Soengei Gerpa.

Medan—Belawan.

Medan—Deli Toewa—Batoe; branch to Arnhemia.

Medan—Loebok Pakam—Tebing Tinggi; branch to Bangoen Poerba.

The project of a railway from Solok to Padang (Emma Haven), has been given up on account of the expense.

The extension of the coast railway north of Padang is to be continued from Periaman to Sungei Liman (86 miles).

Extensions from Tebing Tinggi to Tandjoeng Baloe (57 miles) and to Dalok Merawan (13 miles) are in progress.

Permanent way.—The gauge of the railways is 1·067 metres (3·477 feet). Between Semarang and Djokjakarta in Java a third rail is laid to the gauge of 1·435 metres. Super-elevation of outer rail on curves varies from ·866 to 3·54 inches.

The maximum gradients in East and West Java are, respectively, 1 in 43·5 and 1 in 25, the latter gradient being found near Tjipadalarang. The highest point reached by the railway is 2,760 feet above sea-level.

The sharpest curves are, in East Java, of 984 feet radius; in West Java, of 1,312 feet radius in the level country, and of 492 feet radius in the hills.

The principal gradients on the Sumatra railways are as follows, commencing from Emma Haven:—

Emma Haven to Kajoe Tanam, 37 miles, 1 in 83·3; Kajoe Tanam to Padang Pandjang, 10 miles, 1 in 43·5, and 1 in 14·3 (rack).

Padang Pandjang to north-east point of Lake Singkara, 12½ miles, 1 in 19·6 (rack) down.

North-east point of Lake Singkara to Moera Kalaban, 36 miles, 1 in 50 down, and 1 in 66·6 up.

Moera Kalaban to Sawa Loento, 2½ miles, 1 in 33·3 up, and 1 in 58·8 down.

Northern Branch :—

Padang Pandjang to Pajakoombo, 28 miles, 1 in 43·5 up and down, 1 in 12·5 (rack) up, and 1 in 14·9 (rack) down.

The railway about Medan is on practically level ground.

The normal rail in Java is a 50 lb. rail, and is 33·46 feet in length.

In addition to the 50 lb. rail as used in Java, there is an 88 lb. rail in use on the Padang railway ; it is a single-headed rail of tha same type as that in use on the Dutch State railways in Holland. The normal length of rail is 22·96 feet.

The rack rails weigh 125·6 lbs. per yard, and are each 11·48 feet in length.

The rack is bolted to the centres of the "Post" steel sleepers. In places where there is no rack, steel sleepers of trough section of four different varieties are used. The ordinary steel sleeper weighs 83·77 lbs., that for the 88 lb. rail weighs slightly more. Eight sleepers per rail are used.

The sleepers are of teak, 6 feet by 8·6 inches by 4·7 inches, and weigh about 123 lbs. In Sumatra, where teak does not grow, the sleepers are of steel of the "Post" pattern. There are 12 sleepers to every rail, except on sharp curves and steep slopes, where there are more.

All lines are single tracked except the stretch 5 miles long from Batavia to Tandjong Priok in Java, which is double. There are sidings at all stations.

Bridges.—The superstructures of all railway bridges are of iron or steel.

Many of the bridges over deep water-courses are fine feats of engineering, having been made in the face of tremendous difficulties, such as floods and earthquakes. Such bridges are supported on iron lattice piers, whilst the lower bridges for the most part have masonry piers and abutments.

Locomotives.—There are about 18 varieties of locomotive in use, varying from 14·2 to 33·5 tons in weight. In 1907 there were 341 locomotives in use on the State Railways in Java, of the following types :—5—2 12 0 (German, Mallet compounds), 8—2 8 0 ditto, 131—2 6 0 (German, 52 compounds), 88—2 4 0 (English), 16—2 4 0 (German), 20—4 4 0 (German, compound), 10—0 6 0 (Dutch, compound), 27—0 6 0 (German, 13 compounds), 25—0 6 0 (Belgian), 10—0 6 0 (English), 14—0 6 0 (German), 4—0 4 0 (German). At the same time the Nederlandsch Indisch Spoorweg Maatschappij (private lines Semarang—Djokjakarta and Batavia—Buitenzorg) possessed 50 locomotives of various types (as the Batavia—Buitenzorg line is now amalgamated with the State system 12 locomotives of the N.I.S.M. employed upon it have been absorbed by the Staatsspoorwegen). The engines of the State lines of the west coast of Sumatra at the same time were all of German manufacture, viz. : 8—2 4 0 and 23—4 6 0 (ordinary with Bissel trucks), 23—2 4 0 and 9—0 4 0 (rack).

The Deli private company (D.S.M.) in Sumatra had 29 locomotives of various types. In 1915 the State Railways in Java possessed 511 locomotives and the N.I.S.M. 57 ; the Sumatra West Coast lines 68, and the Deli lines 39.

The number of coaches drawn by one engine varies from 15 to 50 in East, and from 15 to 30 in West, Java.

The fuel used is principally coal from the Ombilin mines in Sumatra ; wood is also used.

Rolling stock.—The carriages used in both private and Government railways are on the American plan, with the entrance at the ends and a passage through the centre of the carriage. They are sparingly furnished and well ventilated, as required by the climate. One 1st class and one 2nd class compartment are combined in the same carriage, while the 3rd class passengers, mostly natives, have separate carriages. The 1st and 2nd class carriages are built some to contain 24 and others 30 passengers ; the 3rd class carriages are constructed for 36 passengers.

In 1907 there were 4,020—10-ton and 112—20-ton box-cars on the State railways, 1,293—10-ton open goods trucks, 22—20-ton and 189—9½ ton flat cars, 243—8-ton ballast trucks, and 10—8-ton tanks. The N.I.S.M. possessed 549 box cars and 341 open trucks. The Sumatra West Coast railways, 145 box cars, 180 coal trucks and 214 various goods wagons. The Deli railways, 199 box cars and 329 open trucks. In 1915 the Java State Railways had 1,271 coaches, 282 luggage waggons, 6,054 freight cars, and 3,955 other trucks, &c. ; the N.I.S.M. 125 coaches, 25 luggage waggons, 884 freight cars, and 445 others ; the Sumatra West Coast Railways 80 coaches, 17 luggage waggons, 214 freight cars, and 599 others ; the Deli Railways 112 coaches, 27 luggage waggons, 529 freight cars, and 601 others.

The usual load is 8 tons for a two-axle truck and 20 tons for bogie trucks.

The type of coupling used is central automatic, with two safety chains.

The metal parts of the trucks and coaches come from Europe ; all wood-work, upholstery, and erection is carried out in the local railway shops.

Speed.—The maximum speed is as follows, in miles per hour : Passenger trains, 37 ; mixed, 28 ; goods, 25 ; but these maxima are frequently reduced by local exigencies ; the average speed of passenger trains is about 15 miles per hour.

The amount of coal burnt per kilometre run varies from 6 kilograms in East Java to 19 kilograms on the Sumatra railway.

Trains run only by day, so that in going, for instance, from Batavia to Soerabaja it is necessary to stop the night at Djokjakarta.

Tramways—2,870 km. of steam-tramways and 18 km. of electric tramways were working in the Dutch East Indies at the end of 1915.

They belong either to the State or to private companies and are of two descriptions—(*a*) those which can be used by railway

rolling-stock; and (*b*) those which cannot. The former have a 50 lb., the latter a 46 lb. rail. The steam-tram lines cost about £3,300 per mile to construct, including rolling-stock; most of them are laid along the high roads Practically all are of the same gauge as the railways.* The maximum speed is about 10 miles per hour.

Lines in Java.—There were 2,126 km. of steam-tramways in Java in 1915. Steam trams are working from Kadipaten, *vid* Cheribon, Semarang and Padangan, to Soerabaja, with numerous ramifications between the last-named place and Semarang. The line from Cheribon to Semarang follows generally the line of the high road. The tram bridges are separate from the road bridges. There are 46 bridges between Cheribon and Semarang. The route lies very close to the sea, and could easily be cut off by a landing party anywhere, thus cutting off Cheribon from the eastern railway system. The telegraph wires run alongside the tram lines.

Between Soerabaja and Kediri a number of lines run in various directions, but communication between those two places is not complete.

A line connects Brosot, on the south coast, with Willem I.; and another short line runs north-east from near Djokjakarta.

Madoera has a line along the whole of the south coast, connecting its extreme points.

The Batavia Electric Tramways Company has 18 km. of line. These are only the principal lines, there are many others.

Lines in Sumatra.—The State steam-tramways in Atjeh work 478 km., as follows :—

Olele—Kota Radja—Indrapoeri—Soelaimoem—Sigli—Lho Seumawe—Edi—Bajan—Langsar—Besitang.

There is also a strategic steam tram about Kota Radja. All the lines are single, except a section of about 1,100 yards near Olele, which is double.

The tramways of the Deli Railway Company are 266 kms. in length.

It is now possible to travel from Medan to Kota Radja by train and steam tram except at Langsar Bay, which may be crossed by steam launch.

ROADS.†—With the exception of Java and the more civilized parts of Sumatra, the Netherlands East Indies are singularly deficient in good roads. Most of the so-called roads are mere tracks or bridle-paths, totally unsuited for any heavy or prolonged traffic. It is therefore necessary, except to some extent in Java, to use coolies as transport, wheeled vehicles being largely useless for military purposes. There are no bridges except on the main roads and the railways, in Java or anywhere else.

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* The Batavia—Meester Cornelis—Kampong—Meladj and the Djokjakarta—Brosot lines are the only exceptions, having a gauge of 1·18 and 1·435 metres respectively.

† *See* also Chapter X.—Routes.

Java.—One of the great features of Java is the system of excellent roads which traverses the island in every direction. Good roads are a necessity in the island, as the whole of the eastern portion consists off the roads of impassable morass and paddy fields, while the western portion is extremely mountainous.

Along the main lines of communication, such as the Great Post Road along the north coast, there are two roads separated from one another by a bank. The one is unmetalled and is used for cattle, the other is macadamised, is wide enough for three vehicles abreast, and is used for wheeled transport only.

The roads are kept in admirable condition, every village being responsible for the section in its immediate vicinity, and the whole being under the constant supervision of European officials.

The roads are usually planted with trees at small intervals. The bridges are strong, well constructed, and maintained in excellent repair; in fact, the roads of Java compare favourably with the best roads in Europe.

The chief road is the Great Post Road (*Groote Postweg*) which traverses the entire length of the island from Anjer in the west to Banjoewangi in the east. It is joined by the Southern Road (*Zuidelijke Weg*), which runs from Soerabaja to Tjilatjap.

The Great Post Road passes through the following towns and districts:—

New Anjer, Serang, Tangerang, Weltevreden (Batavia), Meester Cornelis (with a branch road through Krawang to Poerwakarta), Buitenzorg, Wangoen (where a branch road runs across the mountains in a south-easterly direction through Patjet and joins the main road again at Tjiandjoer), Tjitoeroeg, Soekaboemi, Tjiandjoer, Bandoeng, Cheribon, Tegal, Pekalongan, Semarang, Joana, Rembang, Toeban, Gresik, Soerabaja, Sidoardjo, Bangil, Pasoeroean (where a branch road runs south to Malang), Probolinggo (where a road branches south to Pasirian), Besoeki, Sitoebondo (where a road branches south through Djember), to Banjoewangi.

The Southern Road starts from Soerabaja and runs through Kertosono (where a road branches south through Kediri to Toeloenggagoeng and then branches in two, one east to Blitar, the other west to Trenggalek), Nganjoek (where a road branches south to Kediri), Madioen, Ngawi, Soerakarta, Kartasoera (near which place a branch road connects with Semarang), Djokjakarta (where a road branches north to Semarang), Brosot, Poerworedjo (where a road branches north through Magelang to Semarang), Koetoardjo, Banjoemas to Tjilatjap.

All along the main roads are branch roads, turning off to any places of importance, which are again connected by local roads, maintained in very fair order, even in the hilly districts. More out-of-the-way places are connected with the main and local roads by means of riding paths.

Sumatra.—The roads in Sumatra practicable, according to Dutch official books, for wheeled traffic, are as follows:—

North Sumatra.—From Kota Radja south along the coast nearly

to Daja. From Kota Radja throughout the length of the steam tram line along the north coast, except for a small portion east of Soelaimoem and from Samalanga to a few miles west of Lho Seumawe.

A network of good roads surrounds Medan, and a main road with a few branches approximately follows the coast to Tandjong Balai, where it turns across the island to Taroetoeng ; there it stops, only bridle tracks going further. There is a road from Laboean to Medan, but none from Belawan to Laboean. The railway bridge is used by coolies.

From Meulaboh, on the south coast of Atjeh, a road runs due northward for about 25 miles.

Central Sumatra.—From Siboga, on the west coast, a good road runs to Padang Sidempoean (whence a branch runs north for 15 miles), thence to Pendjaboengan, where it turns south-west to Natal on the sea coast, a separate branch running south-east for 20 miles. After continuing as a bridle-path for a short distance this road becomes practicable again and runs through the centre of the Padang Highlands *viâ* Loeboe Sikaping, Fort de Kock, and Solok to Moera Laboe. This road, or one of its branches, goes to every important town and village in the interior of the Province.

A road follows the railway from Padang throughout its length.

A coast road runs from 50 miles north of Padang southward to Indrapoera.

Southern Sumatra.—From Mokko-Mokko a fine main road runs the whole length of the coast to the extreme south point of the island, only leaving the sea for a few miles to avoid some marshes south of Benkoelen.

From Benkoelen a main road crosses the island *viâ* Tebing Tinggi, Lahat and Moera Enim to Palembang.

From Lahat a branch runs to Bandar, and another from Moera Enim to Batoe Radja.

From Tebing Tinggi a cart road follows the Moesi River the whole way to Palembang.

From Talang-Padang, 10 miles south-west of Tebing-Tinggi, a cart road runs *viâ* Bandar to Batoe Radja, and thence converges again to the main road at Palembang.

From Batoe Radja a cart road runs south, with various side roads, *viâ* Moera Doea to the coast road at Kroë.

East of this and throughout the Lampong district all the principal places are connected by good roads.

From the coast road a few branches run up to the foot of the mountains. The principal one, from Bintoehan, makes its way through the mountains to Banding Agoeng, and so to Moera Doea along the Kroë road.

Celebes.—In the Minahassa district there is a good road running from Kema across the mountains to Menado. This road is joined by a good road joining Belang and Amoerang.

A road, 36 miles long, runs from Gorontalo to the north coast. The journey takes about one-and-a-half days. Four-and-a-half miles fro Gorontalo the River Tapa is crossed by a bridge 70

yards long, at low-water 21 feet above water-level, in time of flood, however, only about 7 feet. About 21 miles from Gorontalo the high road ceases and the hills are crossed by a path. The hills are generally wooded. In the hills there are no bridges. On leaving the hills at the village of Posso the road again becomes a good one, about 10 yards wide, and runs to the village of Kwandang. Near the village is a Government coaling station.

There is a high road connecting Boeloekoemba with Bonthain, Makasser, Maros and Segeri.

Other islands.—Banka and Billiton.—The islands of Banka and Billiton are traversed throughout by a network of cart roads.

Borneo.—There are absolutely no roads on the east coast of Borneo.

The following are the principal cart roads in other parts of the island :—

Bandjermasin—Martapoera—Rantau—Kendangan—Barabai—Amoentai—Tandjong.

The above is a military road connecting the principal garrison posts in Martapoera and Amoentai. This road is 190 miles in length.

Pontianak—Mempawa.

Pontianak—Mandor—Montrado—Pemanghat—Sambas.

Mandor—Ngabang.

Singkawang—Montrado.

Bali.—A cart road runs from Singaradja along the coast for 10 miles to the west and 20 miles to the east. From this road many tracks and paths run south into the hills.

Lombok.—A cart road crosses the island from Ampenan to Sisi.

Soembawa and other islands.—There are no cart roads in Soembawa, Flores, Soemba, Timor, or Dutch New Guinea, nor are any known of in any of the other islands of the Archipelago.

JAVA.—*Inland water communications.**—Java being provided with numerous good roads and an extensive railway system, the rivers are now comparatively little used as means of communication.

The rivers of Java, especially on its north side, are almost innumerable, but, from the swiftness of their currents, and the bars which obstruct their mouths, they are generally unsuited to navigation. They are, however, very valuable as furnishing a constant and never failing supply to the irrigating channels and canals, with which the whole island is intersected, and which, besides contributing to the general purposes of cultivation, are also largely used as a means of communication between the different villages. Most of the rivers, draining as they do the central watershed, have a course nearly due north and south, the principal exceptions to this rule being the Solo and the Kediri or Brantas ; the former rises from many sources in the Damoeng mountains near the south coast, runs at first northwards past Soerakarta, and thence flows in a generally easterly direction

* *See* also Chapter I.—Rivers.

towards the Straits of Madoera, which it enters by two mouths at Sidajoe and Gresik. It is by far the most important river in Java, having with its windings a course of nearly 360 miles, and being navigable as far as Soerakarta (160 miles) for small boats during the entire year, and for large sized *prauws* for all but three months at the end of the dry season. The Kediri or Brantas has its rise at the foot of the Ardjoeno volcano in the Malang table-land, receives many affluents, and after a tortuous course of about 170 miles, discharges itself by two outlets, whereof the northern, or Kali Mas, passes through the town of Soerabaja, into the Straits of Madoera. In the west of Java the Tji Taroem and the Tji Manoek are the most important rivers, but they are of little value except for irrigation. Much detritus is brought down by them in the rainy season, and from this and other causes their bars are silting up and the neighbouring land is encroaching on the sea to the extent of over 21 feet annually. In like manner the Soerabaja Strait has been filling up for years, and although one branch of the Solo was diverted into a new channel in 1854, it is doubtful how long the improved condition of affairs will last.

SUMATRA.—In Sumatra and Borneo the rivers form the chief means of internal communication, owing to the abundance of navigable waterways which traverse both islnds, and the paucity of good roads. From the orography of Sumatra it is evident that there can be no rivers of any length on the western side of the main range of mountains. Upon the other side, however, we find the alluvial plains intersected by streams of great size and depth, by which the whole interior of the country is rendered accessible to commerce. In Sumatra the chief waterways are the Singkel, the Siak, the Kampar, the Indragiri, the Tongkal, the Djambi and the Moesi; all these rivers are navigable for a considerable distance from their mouths by small steamers, and when they get shallower by *prauws*.

In the Palembang Residency the rivers form the chief means of communication. The Moesi is navigable from Tebing Tinggi, and her tributaries, the Klingi, Rawas and Lematang, are used as waterways from Moera Bliti, Moera Roeipit and Moera Enim respectively. All these places are connected with each other, and with other villages lying more up-country, by means of good roads.

The following extract from a Dutch source will give a fair idea of the difficulties and cost of transport in the interior of Sumatra:—

"Travelling in the Residency of Palembang is by no means easy. From Palembang to Moera Doea takes from 30 to 45 days, as one has to row up the Rivers Ogan and Komering in a so-called '*bidar*,' which is a fairly comfortable vessel for two or three days; at night one has to lie up in the middle of the river. The journey to Tebing Tinggi is heavenly in comparison, for one reaches Moera Enim by river steamer in three or four days, and from there to Tebing Tinggi in about six days more in a car.

"The roads, though they answer their purpose, are bad, and not to be compared with even the by-roads of Java. Thus it is thought nothing unusual to take 7, 10, or 14 days over a journey of 50, 100, or 150 miles, respectively. The cost is proportionate to the length of time taken; the cost of the journey by boat from Palembang to Moera Enim is about £8, and for each day's journey by *dak*, about £3. The cost of the 10 days' journey from Palembang to Tebing Tinggi is about £26."

The following description of the inland water communications of Central Sumatra is taken from the account of the Dutch Official Exploration of Central Sumatra in 1877–79 :—

Djambi River, or Batang Hari.—This is one of the chief waterways in Central Sumatra. It rises in the Barisan Mountains, and together with its many tributaries, forms the chief means of communication in the country through which it flows. The Batang Hari is navigable for small craft from near Gasing. There are, however, many rapids which render the journey up-stream very difficult. The Batang Hari, from the mouth of the Pangean to Samelidoe, 50 miles by river, has a width of from 50 to 100 yards; the depth varies very much, but it generally exceeds 3 feet when the water is at its lowest. The difference in depth between the water at its highest and lowest is about 26 feet. At Samelidoe the river is very wide, forming several islands, and consequently shallow. Its breadth between this place and the mouth of the Djoedjoean varies from 80 to 165 yards, and its depth everywhere exceeds 3 feet. The banks are high, so that even during the highest floods the river does not overflow them. From the mouth of the Tebo to that of the Tambesi, a distance of 87 miles by river, the depth is generally from 19 to 23 feet, and the width from 230 to 330 yards, and, with the exception of a large sand bank just above the junction with the Tambesi, there are no sandbanks of any importance or even islands. The Tambesi has been navigated by a steam cutter for a distance of 19 miles from its mouth.

From the mouth of the Tambesi to Djambi the width of the river varies from 100 to 500 yards. In the very broad parts there are mudbanks, which considerably hinder navigation, but even at low water there is always a passage of about 8 feet in depth at the worst places. The average depth of water at Djambi may be taken at from 3 to 10 feet. The average rate at which the Batang Hari flows may be taken at from 1¼ to 2 miles an hour. It may be assumed that the river is navigable between Toerai and Djambi at all seasons by a steam launch having a draft of 3 feet and a length of 160 feet, with the power of steaming 6½ miles an hour. Below Djambi the depth varies at low water from 13 to 40 feet; and a few miles from Djambi the river divides into two arms.

The right arm bears the name of Kompeh; this arm is of very little use for purposes of navigation, as at low water the mouth is completely dry. At Moera Kompeh the two arms unite again; here the Batang Kompeh is an important river, with a width of from 85 to 110 yards, and a depth of from 16 to 26 feet; these

soon dwindle down to 40 to 50 yards and 6 to 12 feet respectively. The banks of the Batang Hari and Kompeh are very low, and the rivers frequently overrun them.

From Moera Kompeh to the beginning of the delta the distance is $8\frac{3}{4}$ miles, the direction being north-east; the river's course is straight, and there are no sandbanks. Its depth varies from 20 to 45 feet, and its width from 273 to 492 yards.

Just below Simpang the river again divides in two. The branches are called, respectively, the Kuala Niur, flowing in a north-westerly direction, and Kuala Berba, in a north-north-easterly direction to the sea. The name Batang Hari ceases at this point.

The distance from this point to the mouth of the Kuala Niur is, in a straight line, 24 miles, or along the river, 37 miles. The width of the stream varies from 164 to 492 yards, with a depth of from 20 to 30 feet, though in some places the depth is only 10 feet. During the last 3 miles of its course the river widens out $1\frac{1}{4}$ miles. At ordinary low water the depth at the river mouth is only $6\frac{1}{2}$ feet. In the case of the Kuala Berba the distances (as above) are respectively $12\frac{1}{2}$ and $21\frac{3}{4}$ miles, the width 218 to 601 yards, and the depth 20 to 40 feet, with two shallower places where the depth is 15 feet.

There are numerous other smaller branches in the delta, all more or less unfit for navigation owing to the dense jungle.

The general nature of the delta is swampy, covered with jungle. The effect of the tides is perceptible, but very slightly, even as far Djambi. A bar is formed across the mouths of the Batang Hari by a mudbank which runs along the whole coast of the island at a distance from the shore of, roughly speaking, 6 miles. There is an opening in this bank opposite the mouth of the Kuala Niur, which at high tide enables ships having a draught of $14\frac{1}{2}$ feet to pass up. It is not possible to cross the bar at the mouth of the Kuala Berba, and consequently this arm is closed to navigation, though it is much shorter and generally better fitted for it.

We thus arrive at the following general results with regard to the Batang Hari. The river is navigable from the mouth of the Kuala River upwards for a distance of 382 English miles for a steam pinnace, and for another 118 English miles by *prauws*.

Tongkal River.—This river lies north of the Batang Hari. It has been explored in a steam launch for a distance of 93 miles, or 31 miles as the crow flies. At its mouth the width is 1,640 yards, but it then rapidly contracts to 110 yards. Its depth at the mouth at low water is 16 feet; this gradually increases to 39 feet, and then dwindles down again to from 6 to 9 feet. At the furthest point reached the width of the river was about 27 yards, but owing to the overhanging trees, the available passage was in many places not more than half that width.

Batang Moesi.—This river rises to the east of the Lebong plateau, and after passing through hilly country as far as Tebing Tinggi, enters level country, and is fit for navigation by large native *prauws* everywhere below this. After its junction with the

Rawas, the river has a breadth of 110 yards; this gradually increases, and below the junction with the Lematang at Rantau Bajoer the breadth is 328 yards. The bends in the river offer no obstacle to navigation. When fairly full it can easily be used by small steamers. The rate of the current is about 1½ miles per hour; the banks are low, and the river frequently overflows them. The Lematang is navigable at Lahat, and steamships having a draft of about 2 feet and length of 120 feet can usually get up as far as Moera Enim, though at very low water they are sometimes unable to proceed higher than Goenoeng Megang. The breadth of the river is from 65 to 90 yards, but the turnings are so numerous and acute that to allow steamship traffic to take place, the course of the river had to be altered in places. There are also sandbanks.

From the mouth of the Lematang to that of the Ogan at Palembang, the Moesi widens out to 550 yards. From Palembang to the sea the distance by river is 59 miles. Vessels of considerable draft can reach Palembang.

Siak River.—This river is an important commercial highway on the east coast of Sumatra. The mouth of the river is ¾ mile wide, with a bar across it. It is navigable for vessels of about 200 tons to 20 miles above the town of Siak, which is situated 65 miles from its mouth. Including boat navigation its navigable course is said to be 150 miles.

Borneo.—The greater part of the inland communication is by water, for which the numerous rivers and connecting creeks and canals furnish abundant facility.

The rivers forming the chief waterways are the Kapoeas, the Baritoe, and the Mahakam, together with their tributaries.

Kapoeas River.—Its sources lie in the central mountains of Borneo, and the stream runs in general in a south-westerly direction through the western division, emptying into the Karimata Straits. It forms an enormous delta at its mouth, which is beset with a bar carrying only 10 or 12 feet of water at high tide, and nearly dry at low water. The river is navigable by small steam craft for about 200 miles. Pontianak is about 12 miles from the entrance, near the junction with the Lendak.

Baritoe River.—This is the longest river of South Borneo, and is a very important means of communication between the centre of Borneo and the south coast. Its lower course is known as the river Baritoe, but further inland it is called the Dusson. According to Schwaner, the length of the Baritoe is about 570 miles. The width of the river at its mouth is 5,700 yards; 51 miles inland it is 1,739 feet; at Boentok (105 miles), 750 feet; at Moera Tewe (159 miles), 650 feet; at 180 miles, 450 feet.

The river is navigable for more than 53 geographical miles, the first cataract making its appearance below Montalat. Its tributary is navigable as far as Amoenta.

At the mouth of the Baritoe there is a large bank which prevents ships drawing 12 feet of water from entering the river. Ships drawing 11 feet can only pass it at high tide, but for ships

drawing 8 and 9 feet it is always navigable. There are places of only 5 to 6 feet depth at low water, so that, in order to make a safe passage, the high tide must be waited for. The difference between high and low water is 8 feet.

Mahakam.—This river, also called the Koetai, flows in a south-easterly direction into the Straits of Makasser. The various branches diverge from the main river at a point 25 miles from the bars at the southern entrance. Ten miles above the junction stands the town of Samarinda. Tengaroeng, the capital of the province of Koetai, lies 20 miles further up, the river making a great bend between Samarinda and Tengaroeng. Ocean steamships can ascend the river as far as Tengaroeng.

CELEBES.—None of the rivers are navigable for anything but small craft, with the exception of the Tjenrana, which runs into the Gulf of Boni close to the town of that name, and which admits large native vessels for a distance of 50 miles or more.

TELEGRAPHS.—The telegraph system of the Netherlands East Indies is as follows :—

Land Telegraphs—

Java and Madoera (not including the railway telegraph, which follows the line everywhere, but including telephone lines).

Anjer—Serang—Batavia—1 line.
Batavia—Buitenzorg—5 lines.
Buitenzorg—Soekaboemi—Bandoeng—4 lines.
Bandoeng—Soebang—1 line.
Bandoeng—Cheribon—1 line.
Bandoeng—Poerworedjo—Djokjakarta—3 lines.
Batavia—Krawang—4 lines.
Krawang—Soebang—2 lines.
Krawang—Indramajoe—2 lines.
Indramajoe—Cheribon—3 lines.
Soebang—Indramajoe—1 line.
Cheribon—Tegal—4 lines.
Tegal—Semarang—3 lines.
Tegal—Banjoemas—1 line.
Banjoemas—Tjilatjap—1 line.
Banjoemas—Magelang—Semarang—1 line.
Poerworedjo—Magelang—1 line.
Semarang—Salatiga—Soerakarta—1 line.
Djokjakarta—Soerakarta—Madioen—Soerabaja—4 lines.
Madioen—Patjitan—1 line.
Kertosono—Toeloenggagoeng—Malang—Bangil—1 line.
Soerabaja—Probolinggo—6 lines.
Probolinggo—Sitoebondo—4 lines.
Probolinggo—Djember—Sitoebondo—1 line.
Sitoebondo—Banjoewangi—2 lines.
Semarang—Rembang—4 lines.
Rembang—Gresik—Soerabaja—2 lines.
Rembang—Blora—1 line.
Bangkalan—Soemenep (Madoera)—1 line.

Land Lines in Sumatra—

Olele—Kota Radja—2 lines.
Singkel — Padang Sidempoean — Padang — Benkoelen — Lahat—Telok Betong—Kalianda—1 line.
Padang Sidempoean—Medan—Tanjong Poera—1 line.
Lahat—Palembang—Djambi—1 line.

A second line has been laid from Padang to Palembang, *viâ* Djambi. The Sumatra telegraph line connects with the existing cable between Batavia and Palembang (*see* below) *viâ* Billiton and Banka, and runs from Palembang to Boengo, and Seveh Loentoe to Padang, then connects with the cable which runs between Padang and Siboga, and thence goes to Moean *viâ* Taroetoeng, Pematang, Siantar and Tebing Tinggi.

Borneo.—A line connects Bandjermasin with Balikpapan.

Lombok.—There is a line across Lombok from Ampenan to Sisi.

Altogether there were in use in the Dutch East Indies in 1916 about 11,000 km. of Government land telegraph line with 25,000 km. of wire.

The following are further details of the inland telegraph service :—

Offices open for inland and international use	436
„ „ „ use only (telephone)	64
	500
Government offices	159
Railway or private company offices	341
	500
Apparatus in use—	
Morse (exclusive of 139 Morse apparatus of railway company)	799
Other systems	174
	973
Personnel	1,850

Cables between Possessions :—

Olele—Medan.
Olele—Sabang (Poelo Wei).
Kalianda—Anjer.
Padang—Siboga.
Padang—Benkoelen—Lahat—Weltevreden.

Padang — Djambi — Palembang — Banka — Billiton — Weltevreden.
Indro (near Soerabaja)—a point near Kamal (Madoera).
Sitoebondo—Singaradja.
Batavia—Billiton—Pontianak (Borneo).
Landangan (near Sitoebondo)—Bandjermasin.
Landangan—Makasser.
Palembang—Billiton.
Balikpapan (Borneo)—Menado (Celebes).

To other Countries :—

Medan—Penang.
Batavia—Singapore.
Banjoewangi—Port Darwin (two cables).
Banjoewangi—Roebuck Bay.
Pontianak—Poouo Condor—Saigon.
Menado—Yap (Caroline Islands) to Guam, Shanghai, and German New Guinea.

This last cable is connected at Guam with the American San Francisco—Philippines cable, and at Shanghai with the German (now Japanese) cable Shanghai—Tsingtao—Chifu, and with the cables of the Great Northern (Danish) and Eastern (British) Telegraph Companies.

Wireless telegraphy.—The following stations were reported to be in existence in 1919 :—

Java : Batavia (Weltevreden) — Telefunken (controlled by Marine Department.)
Neglasseric.
Sitoebondo (Landagan), range 700 km.
Surabaja—Telefunken.
A naval and military station in course of erection at Tjililin.
Sumatra : Sabang—Telefunken, range 750 km.
Si Antar—reported radio station.
Borneo : Tarakan—Royal Dutch Petroleum Company—Marconi.
Balikpapan—Royal Dutch Petroleum Company—Marconi.
Banda Islands : Neira.
Poeloe Samboe Island : Dutch Government receiving station. Low aerial.
Tambelan Island : S. Barbe.
Timor : Koepang, range 700 km.
Moluccas : Amboina, range 700 km.

In May, 1918, it was stated by the Colonial Minister that the large European stations can now be heard regularly in Java, but that efforts to communicate with the naval station at Amsterdam had not as yet been successful. The Dutch Government has now

(September, 1918) arranged with the German Telefunken Company to erect a great wireless station in Holland, on the model of that at Nauen, which will be able to communcate with a similar station at Bandoeng in Java. Subsidiary stations are proposed at Bintoehan (South Sumatra), and in Soembawa.

TELEPHONES.—There are telephones in all the principal towns of Sumatra and Java, and the telephone is also largely used in out-of-the-way districts as a subsidiary to the telegraph. In Padang and Deli telephones are much used.

In Sumatra telephones exist from Kota Redja to Tjalang, Meulaboh, and Tapa Toean ; in Java, from Batavia to Soerabaja and to Bandoeng.

According to the "Netherlands Government Almanack," there are a number of telephones in Celebes, but nothing further is known about them.

Sea communications.—The Koninklijke Paketvaart Maatschappij (Royal Steam Packet Company) maintains a regular subsidized steamship service between the chief ports of Java and the other islands of the Archipelago. The steamers run as far as possible in communication with the ocean-going lines to Singapore and Europe. Before the war the Queensland Royal Mail steamers ran monthly from Europe to Batavia and those of the Stoomvaart-maatschappij Nederland (Netherlands Steamship Company) fortnightly.

The first-named Company has coal depôts at Sabang (Poelo Wei), Tandjong Priok, Soerabaja, Makasser, Gorontalo, Amboina, Bandjermasin, and Belawan (Deli).

CHAPTER VII.

Harbours, Defences, &c.

Strategical position.—The strategical importance of the Netherlands East Indian possessions is easily seen by looking at the general map of the world.

The chief trade route of the East passes along the east coast of Sumatra, thus one side of the great canal formed by the Straits of Malacca for 600 miles is Dutch territory.

Any conceivable route adopted by a vessel to avoid the Straits of Malacca would only lead it through one of the narrow straits between the various islands which extend from Sumatra to New Guinea and which are all Dutch territory. Even after passing through this chain of islands from the south, vessels would find themselves for one or more days' sail exclusively in Dutch waters.

Not only do the Netherlands East Indies command the chief trade route to the East, but that from Colombo to Australia is also within striking distance of them, Keeling Island, which is almost on the Colombo—Melbourne route, being only 860 miles from Batavia.

The central position of Batavia as regards the Far East may be gauged from the following table, showing its distance in nautical miles from various important points :—

Keeling Island	860
Manila	1,564
Hong Kong	1,780
Colombo	1,800
Madras	1,960
Perth	2,000
Calcutta	2,200
Bombay	2,670
Nagasaki	2,710
Vladivostok	3,330
Melbourne	3,750
Aden	3,900

From the above it is evident that the possession of the Netherlands East Indies by a first-class Power of aggressive tendencies would seriously endanger the whole trade of the East and the peace of the world.

Holland has, fortunately, developed no such spirit of aggression, and has shown no desire for further expansion of her colonial possessions. Furthermore, all military and naval measures which she, as far as is known, has taken, are of a purely defensive nature, and can in no way be construed into a menace to any other Power.

The principal defences are believed to be those of Soerabaja and its approaches, of Batavia, of Tjilatjap, of the Bandœng plateau in the interior of Java, and of Sabang Bay in Poelo Wei.

In addition to the above, a large number of harbours and inland towns have fortifications, most of them of obsolete form of trace, profile, and elevation, which, having served their purpose of menace to, or defence from, hostile natives, are being gradually struck out of the official list of fortifications.

Object of defences.—It will be convenient to consider first the object of the defence of the following places:—Sabang Bay, Batavia, Tjilatjap, Soerabaja, and the Bandoeng and Magelang plateaux.

Sabang Bay, in Wei Island (Poelo Weh or Pulo Way), is a coaling station pure and simple, whose institution and development are both of very recent date. Except as a subsidiary naval base, it is not a strategical point of any importance. It is not apparent that it could have any bearing on land operations, for it is about 10 miles from the mainland; and the mainland, when reached, is an inhospitable, unhealthy shore, populated by hostile natives. It is, however, important as a coaling station (*see* p. 93).

Batavia is the seat of government, and is, on that account, the most important town in the Dutch East Indies. It is the end of the railway which traverses Java nearly throughout its length, and is the chief port of the western half of the island. Also it covers the approach to the Bandoeng plateau from the north-west.

Tjilatjap.—This port, situated on the south coast of Java, owes its importance to the fact that it is the only harbour of refuge on the south coast, and a convenient base for the defence of the railway along that part of its course which lies close to the coast, and where it is, therefore, vulnerable. Tjilatjap also covers the approaches to the Bandoeng plateau from the south-east, and is the coal port for a large section of the railway.

Soerabaja is situated on a narrow channel facing Madoera. It is the port of a very large and fertile district, and is the only dockyard and naval base of any importance in the whole of the Netherlands East Indian possessions. Soerabaja is the next town in importance to Batavia, and is the most important centre of communications in Java.

The Bandoeng Plateau, of which the town of Bandoeng is the centre, is becoming an important military centre. Its importance lies in the fact that it appears to be regarded as a great natural keep, to which the garrisons of coast towns may retire, and which by its position, is rendered easy of defence from all sides. As the railway traverses it from end to end, reinforcements and supplies could be poured in from either end.

The Magelang Plateau, further east, which is somewhat similar to that of Bandoeng, may eventually be fortified also.

Details regarding the defences of the above-mentioned places will be found below in the description of the various harbours and coast towns.

JAVA.

Owing to the configuration and nature of the coast line Java possesses only two good natural harbours. On the north coast there are many bays, but none of them penetrate to any great distance, so that only one good natural harbour is found on this coast, that of Soerabaja, formed between the main island and Madoera. The southern coast is still less indented, and is exposed to a heavy and dangerous surf, which rolls in upon the shore at all seasons. Owing to this, and also to the fact that it is out of the direct trade route, it is but little frequented and has no really safe harbour but that of Tjilatjap.

BANTAM.—The town of Bantam, the capital of the province of the same name, is situated on the central mouth of the River Pandan, which discharges itself by three mouths into the Bay of Bantam on the extreme west of the north coast of Java.

The bay is about 9 miles in width and 6 in depth; Pandjang Island, 2 miles in length, lies in the centre of the widest part of the bay. The entire bay is fringed with a mud-bank about a mile wide. Vessels anchor in 3 fathoms a mile from the shore. The 4-fathom line is about 3 miles out.

Bantam is the port of Serang, which is situated about 6 miles to the south, on the main road and railway to Batavia. The two places are connected by river as well as by a second-class road.

Supplies and good water are scarce. There are no defences.

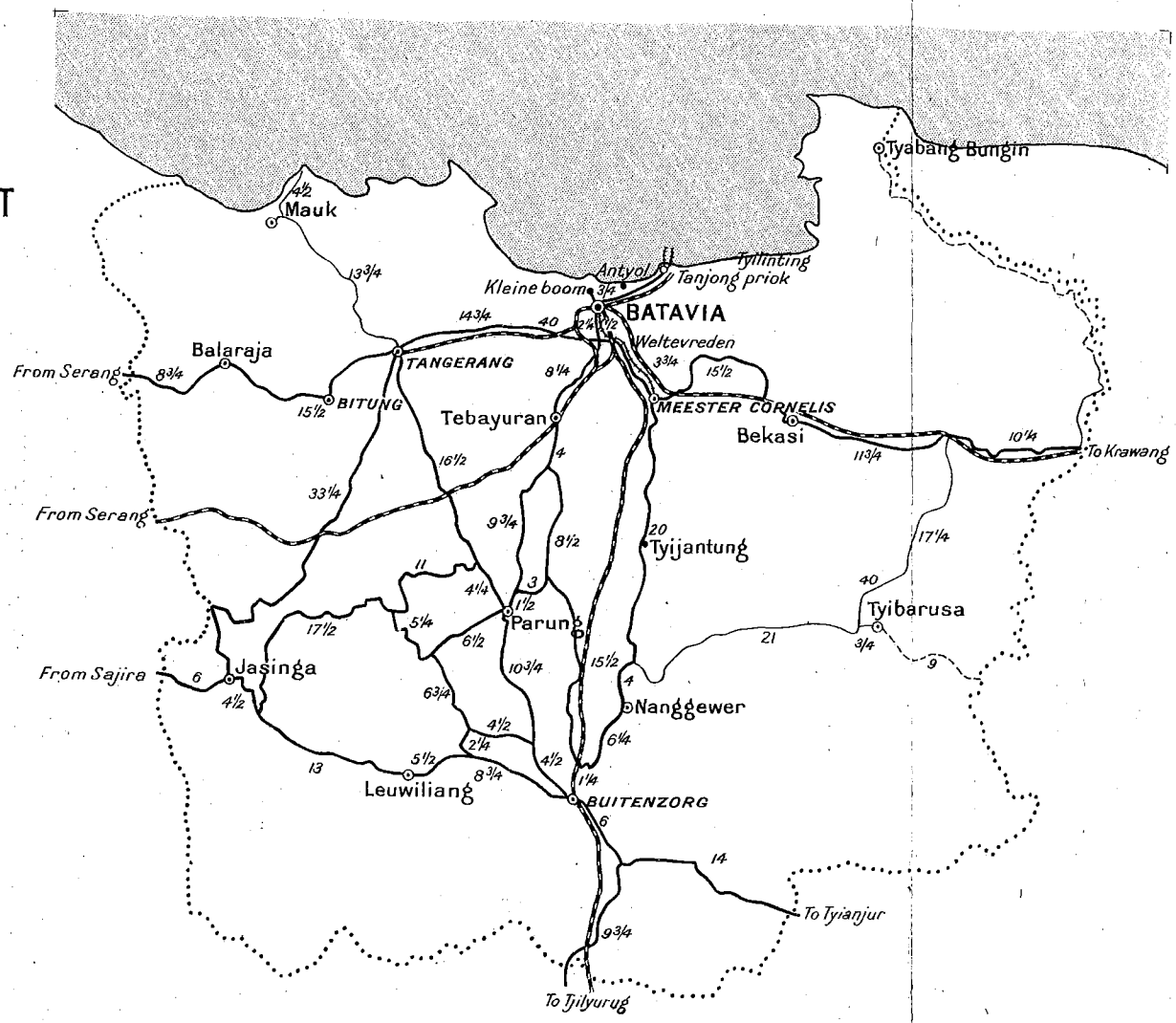
BATAVIA.—The capital, not only of Java but of the whole of the Netherlands East Indies, is the seat of the Government and is situated on the shore of a wide shallow bay, near the western extremity of the north coast. The town may be divided into two parts, the old and the new. The old, or lower town, was originally built on the seashore at the mouth of the River Liwong, but the sea has since receded about a mile. The Liwong has been converted into a canal, 160 to 180 ft. wide, leading from the sea, between two piers and inland to Batavia. The two piers project about 1½ miles from high water line. There is a passage for boats in the eastern pier, abreast of the main light. The old town is an oblong of about three-quarters of a mile in length and half a mile in width, covered with stone buildings arranged in squares and intersected by canals traversed by numerous bridges. The principal channel, which runs through the middle of it, is from 160 to 190 feet wide. The place is unhealthy, and the merchants and officials retire to the new town as soon as the day's business is over, thus partly avoiding the miasma arising from the swamps, which is carried seaward by the land wind prevailing at night. South of Old Batavia is the closely packed Chinese and native town, of about one mile square, also intersected by canals. Thence for about one mile along the main road and Molenvliet canal the town narrows down to a mere strip.

Between the fourth and sixth miles from the shore is the new town (New Batavia), about 2 miles in breadth. This consists of a wide-spreading collection of villas, gardens, native bazaars, hotels

ROAD MAP OF
BATAVIA DISTRICT

Scale 1 / 75,0000

Distances are given in miles



G.S., G.S., Nº 2916.

War Office, Febʸ 1919

and shops. It also contains the palace of the Governor-General on the north side of the Koningsplein (parade ground), fine barracks, and a drill ground. It is intersected by canals, but they are less numerous than in the old town. The various parts of the new town are named, commencing with the most northerly, Molenvliet, Nordwijk, Rijswijk, Weltevreden, and Parapatan. South of the last-named the ground begins to rise. The city, as seen from the sea, appears almost sunk in a flat beach, the Weltevreden parade being only 16 or 17 feet above the sea.

Owing to the frequency of earthquakes, the houses are for the most part of one storey. The old city and the new are connected by two railways, one tramway, and wide roads for carriages.

Railways.—Batavia has railway communication as follows:—Westward to Serang, Anjer and Laboean, eastward to the port of Tandjong Priok, and (*viâ* Bekasi or Buitenzorg) to Tjipadalarang, and thence with the whole system of Java.

Telegraphs.—The town is in telegraphic communication with the principal towns of Java, with Europe *via* Singapore, with Australia *viâ* Banjoewangi and Port Darwin or Roebuck Ray, with Sumatra *viâ* Kalianda, with Makasser *viâ* Sitoebondo and Singaradja, and with Borneo *viâ* Landangan.

Telephones.—There is telephonic communication between Batavia, Semarang, Soerabaja, Tegal, Cheribon, and Pekalongan. The tariff varies from 4*s.* 2*d.* for distances from 160 to 190 miles to 10*s.* for 380 miles for a 3-minutes' conversation.

Exports.—The principal articles of export are cinchona bark coffee, gums, hides, indigo, pepper and other spices.

Supplies.—Supplies of all kinds can be obtained in large quantities and at reasonable prices.

Hotels.—There are 10 hotels of varying quality in the town. These are all along the tram lines. The largest is the Hotel des Indes, with 138 rooms.

Population.—The population of Batavia in 1905 consisted of 8,777 Europeans, and 129,774 natives and other Orientals; total 138,551. The population has increased steadily since 1890.

Practically the whole trade of Batavia passes through the port of Tandjong Priok, a description of which follows.

Tandjong Priok, the port of Batavia, lies about 5 miles east of that town, and is connected therewith by rail (double track), canal, and telephone. (*See* map facing page 78.)

Harbour.—The harbour consists of an outer and an inner haven. The former is enclosed by two stone breakwaters, each about 6,000 feet in length. The breadth of the outer harbour increases from 2,000 feet near the north end to 3,600 feet at the south end. The depth is 28 feet near the entrance and 24½ feet in other parts.

The inner harbour, excavated out of the land, is 3,500 feet long and 560 feet broad, with vertical quay walls, and a depth of 24½ feet at low water.

On the east side is the coal-wharf; on the west are five travelling cranes of 1½ to 2½ tons lifting power. These cranes

have such short arms that they are useless for unloading steamers.

The quay on the west side of the inner harbour is stone-faced and has seven goods sheds, each 150 yards long by 40 yards broad, with a railway line down the centre of each shed. These sheds stand back 14 yards from the edge of the quay, from which they are separated by a double line of rails.

The wharf on the east side is a wooden staging, and only extends for 900 yards; there is thus no wharf for the last 300 yards at the southern end of the harbour. This wharf has 12 coal-sheds, each 80 yards long by 20 yards long by 20 yards wide. About 10,000 tons of coal were stored on it when visited. In addition, there are two circular petroleum tanks, 40 feet high by 60 feet diameter, a few hundred yards east of the coal wharf. The quays are lit by electric light.

West of the entrance to the harbour, by the Royal Steam Packet Company's workshops, there is a floating dock capable of lifting a 4,000-ton steamer, a slip capable of lifting a 2000-ton vessel, and shops capable of making castings up to 5 tons. At the repair shops there is a crane with a radius of action of 30 feet, capable of lifting 20 to 25 tons to a height of 40 feet.

A scheme is said to be on foot for deepening and improving the harbour, which has suffered much from silting up in recent years. According to Dutch press reports, it is proposed to divert a small stream, which now flows into the canal connecting the harbour with the town and carries a great deal of mud to the former.

In 1909 the silting became so serious that large steam-dredgers were brought from Europe to clear it. The Belgian Consul at Batavia in 1910 reports: "It is proposed to improve the harbour by constructing to the west of it a dock 131 yards wide and 31 feet deep, and a quay 450 yards by 550 yards will be built east of the new dock, and the torpedo-boat station will be enlarged."

West of the inner harbour is a dock basin 650 feet long and 130 feet broad. On the eastern outer head of the basin is a 25-ton crane.

Water.—Water is supplied from a reservoir fed by three artesian wells. On the moles of the outer harbour are eight hydrants and in the inner harbour three.

Coal, &c.—Both coal and liquid fuel are obtainable. The usual stock of coal kept is about 3,000 tons and of liquid fuel 2,000 tons. The number of oversea ships using the harbour before the war was about 1,000 entering and 1,000 clearing annually.

Defences.—The width of the bay is such that the sides of it are thought by the Dutch too far distant from the town to enter into considerations of defence.

The immediate vicinity of the town is very flat and only a few feet above sea level. From the coast southwards the rise of the ground is very gradual; Tangerang, 10 miles inland, is only 55 feet, Bekasi, 12 miles inland, 60 feet, above the sea.

The country both to the east and west of the town is, for some 5 miles, intersected by irrigation and drainage channels, which

divide the low-lying marshes, rice fields and pastures. A large portion of this area on each side of the town can without difficulty be inundated, and the town thus protected by an almost impassable zone on either side. It is possibly for this reason that the Government appear not to have expended much money on works and guns to protect the east and west flanks of the town but have restricted themselves to the sea front.

The works on the sea front are divided, in official publications, into three categories, viz., Works west of Batavia, Works at Batavia, and Works east of Batavia. The first-named appear to include two or more forts near the mouth of the Angke stream, 2 miles west of the town; those at Batavia, one or more works near the shore end of the piers of the old harbour; and those east of the town, two or more works near Antjol on the canal and railway half-way between Batavia and Tandjong Priok.

If the newspaper article, of which a translation is given below, is to be trusted, there is, in addition to the above-mentioned works, a work near the harbour of Tandjong Priok, and another somewhere about the point of intersection of the road and railway between Batavia and Tangerang.

In 1901 contracts were made for the supply of 3-inch and 4·7-inch guns for the works above Batavia, and 6-inch guns have also been sent out. All these guns are Q.F. Their distribution in the various works is not known.

In 1902 the defences at Batavia were stated in the Colonial Report to be nearly, those to the east and west quite, completed; the defences to the east and west completely armed, those at Batavia partly armed.

But in 1910 the only modern defences that appeared complete were the two forts at Antjol, on the east side of the river. They are well concealed by thick jungle. There is also a redoubt close to the Kleine Boom, near the custom house; another close to and to the east of Tandjong Priok harbour, and a third at the junction of the three roads at Tjiakang. How far these three redoubts are complete and armed is uncertain. They are similar to each other, being square in plan, with sides about 80 to 100 yards long, with traverses, made of earth, and apparently only intended for field and machine guns.

The forts on the coast are so unhealthy that in February, 1902, 33 per cent. of the garrison of one of them were down with malarial fever.

The following is an abbreviated translation of an article in *De Locomotief* of 9th November, 1903 :—

Defences of Batavia.

"Extract from Colonial Report, 1903 :—

"The works for the defence of the coast line near Batavia are nearly, those to the west and east of Batavia entirely, finished. The latter are wholly, the former partly, armed. The old shore

batteries have been again put in a serviceable condition as far as is necessary to the new defence scheme.

"The approach to Batavia from the north has thus been closed in an up-to-date manner, and an attempt at landing between Antjol and Tandjong Priok would be unprofitable. The main roads from Tjilinting to the east and from Tangerang to the west are covered by powerful works which would successfully resist troops armed with modern artillery.

"Thus Batavia is unprotected only on the south side, but at any rate it will be a fortress that can only be subdued by more than ordinary means. Why nothing has been done on the south is not clear. Looking at the map one observes that from Batavia as far as Buitenzorg the whole country is cut up into rows of villages and that various roads, fit for all arms, lead to our capital. One work would not therefore suffice; it could at most close only one road. To defend the south as many works would be necessary as there are roads, and the whole district would have to be devastated to clear the field of fire. Even this would not ensure safety as the whole ground is firm and accidented, and troops could get up to or even past the forts unharmed. This is probably the reason why nothing is done in peace time for the defence of this side, but it is a matter for regret that the topographical conditions do not admit of some *point d'appui* being constructed.

"It is a cause for anxiety that an enemy landing to the east or west can move round to the south side of Batavia without engaging the works in those directions.

"But our officers have the advantage of being quite at home on the ground in the vicinity, and an enemy would find himself at a disadvantage in the thickly grown country.

"In providing defences to the north regard has been had to the fact that the principal approaches to the town are the harbour of Tandjong Priok and the channel by the old piers.

"At the former an enemy's fleet would find a good berth with first-class landing facilities, cover for troops in the sheds on shore, and a good road into the town. In the channel by the old piers boats can be towed by steam-pinnaces and troops landed at a point 10 minutes' walk from the town-hall. No wonder these approaches are regarded as dangerous, and that they have been closed by serviceable works. The writer presumes the mouth of the Priok harbour would be closed by torpedoes in war. The fort built to the south of the basin will cover the inner and outer harbour, and the enemy will not be able to see anything of the defenders even from the masthead.

"But even if the fort south of Priok is silenced, the enemy's object is not achieved. To get into the town he can only use the roads on each side of the boat canal *viâ* Antjol; here the difficulties of destroyed bridges, &c., will present themselves, and he will be opposed by the reconstructed Antjol fort. (Antjol is about midway between Tandjong Priok and the old harbour.)

"The old channel has at its southern end an excellent work which replaces the old Loo and Welkomst batteries (now destroyed).

"But the question arises as to what is to be done if the enemy lands on some other point on the shore between Tandjong Priok and the old harbour and moves on Batavia. The writer thinks the nature of the country alone will stop that. It is a swamp teeming with mosquitoes, and is cut up by dykes and streams swarming with crocodiles and sharks. Further, he cannot from that side move on Batavia without coming under fire of at least one of the batteries.

"The conclusion is that he must land either to the east or west of the town. To the east he will find a suitable landing-place at Tjilintjing or between that place and Tandjong Priok. Here the English landed in 1811. From that place runs a road, fair at first and afterwards excellent, to the south-east of Batavia: so that an enemy may be reasonably expected from that direction. The country on the west of this road can, however, be inundated by a new arrangement of sluices, and the enemy will soon come under the fire of the long-range guns which are to be provided for the fort lying to the south-east of Batavia.

"It is not impossible that a landing might be effected west of Batavia; places are to be found where the ground is firm and easily crossed.

"From those places the main Batavia—Tangerang—Serang road is easily accessible, and thence an enemy could march *vid* Gang Chaulin to the line Bosch—Petodjo—Molenvliet.

"But at some distance from Batavia lies a fort which covers the road, the railway, and the canal.

"If the enemy tries to move round the fortifications and comes in from the south, he runs the risk of being driven from his base by our mobile troops.

"The situation may be summarised by saying that Batavia is a hard nut to crack, and that its capture can only be attempted by an efficient fleet, transport service, and military force."

Troops available for defence.—To calculate, with any pretensions to accuracy, the number of troops which would be available to oppose an attack on Batavia is practically impossible. The inland communications between Batavia and other military stations in Java are so good that the collection of troops there is only a matter of a day or two. The number of troops, out of the total of about 25,000 available in Java, is, therefore, dependent on the requirements of other defended places, and on the length of the period of diplomatic tension or of actual hostilities preceding the delivery of an attack on Batavia.

These remarks apply equally to Tjilatjap and to Soerabaja.

The figures given below for Batavia will therefore be restricted to a recapitulation of the normal garrison and the actual strength of the first military district of Java.

Approximate normal strength of Batavia Garrison.

5 field battalions and 1 machine gun detachment	3,800
1 squadron cavalry...	160
2 field batteries	400
3 companies garrison artillery	300
Schutterij	880
Total	5,540

Actual strength of first military district of Java at end of 1916 : 6,812 officers and men and 559 horses ; 12 field guns and 15 (?) machine guns.

The principal barracks of Batavia are situated close to the Waterlooplein. They are used for infantry and field artillery. Close by are the arsenal, war magazine, supply depôt (subsistenskader), hospital, and officers' quarters The old Prins Hendrik Fort in this neighbourhood is used as a magazine for small-arm ammunition. At Meester Cornelis there are two blocks of infantry barracks, a rifle manufactory, and a military school. There are also cavalry barracks in the Noordwijk district and a rifle range at Keboen Djahi. The Waterlooplein and Koningsplein form admirable drill grounds.

CHERIBON.—Tjirebon (Cheribon), the capital of the province of the same name, is situated about 110 miles east of Batavia, with which it is in communication by telephone, telegraph, railway and road (the Great Post Road). A tram concession has been granted for a line along the coast from Batavia, but work has not yet commenced. To the south-west a steam tram runs as far as Kadipaten, to which place a branch railway line is being built from Malangbong.

The steam tram runs eastward from Cheribon to all the north coast ports, tapping a rich sugar and rice district.

Cheribon is the outlet to one of the richest districts in Java exporting sugar, coffee, indigo and teak.

There is no harbour for large vessels, but only a boat harbour, 20 yards broad by 300 yards in length, formed by two coral-stone moles, suitable for vessels of 12 feet draught and under. On one of these piers is a 20-ton crane. Communication with the shore is occasionally interrupted by weather.

So much silt is brought down by the River Rebon that a steam dredger has to be constantly at work keeping the boat harbour and channel open.

Supplies are abundant, but water is, in the dry season, scarce and bad.

The town has large godowns, a club, market place and many Chinese and native shops. There is no garrison, and it is said to be unhealthy for Europeans.

Defences.—Fortifications are said to be contemplated at Cheribon but at present there is nothing but an old redoubt at Gempol,

between Cheribon and Kadipaten, which is used as a storehouse. There is a rifle-range close by, with disappearing targets.

TEGAL.—Tegal is the port of the Tegal district and Pekalongan. It is situated at the mouth of a small river, contains some good buildings and several native boat-building yards. The steam tram runs east and west along the coast, and also for about 15 miles due south to Balapoelang. The town is on the Great Post Road, and has telegraphic and telephonic communication in both directions.

A small boat harbour, 547 yards by 33 yards, has been formed at the mouth of the river, and is kept open by dredging; its depth is at times not more than 2 or 3 feet at low water. The usual anchorage for large vessels is 1½ miles out. No defences.

Water is obtained from artesian wells, some of which near the shore are bad. Supplies are plentiful and excellent.

PEKALONGAN.—Pekalongan is a small town containing many good storehouses, and lying on the Great Post Road about 2 miles from the mouth of the Pekalongan River. It has steam tram, telegraph, telephone and road communication east and west along the Great Post Road, and another good road runs along the river to the boat harbour at its mouth. Plenty of good supplies are obtainable, but the water is bad. No defences.

SEMARANG.—Semarang (sometimes called Samarang) is the principal town of Central Java (population about 100,000) and the capital of Semarang province. It is the centre of communications on the north coast, having, in addition to the usual Great Post Road facilities to the east and west, a railway running south-east to Soerakarta and Djokjakarta and one to Willem I., with steam tram communication thence to Magelang and Djokjakarta. A main road also goes due south to Willem I. and the military posts in its vicinity.

It is a long straggling town on both banks of the Semarang River. The town is separated from the sea by a marsh of from half a mile to a mile in width, but to the east and west of it are extensive level plains, well cultivated and traversed by canals. The land rises rapidly southward of the town.

The railway station lies north-east of the town, and there is a branch line running on to the eastern pier at the mouth of the river.

The trade at Semarang is considerable, although there is only an open roadstead, and cargo has to be loaded and discharged by *prauws* of 4 to 69 tons. Ships usually anchor about 3 miles off shore.

There is another anchorage about 1 mile from West Pierhead. Depth, 18–24 feet.

Provisions and water are plentiful. There is a 10-ton crane on one of the two piers enclosing the mouth of the river. The river-side quays are faced with stone, and there are large go-downs. There are shops where considerable repairs can be done, castings made and casting turned.

Defences.—All the defences at this place are obsolete. Fort Prins van Oranje is now used as a barrack. The only other large

military building is the military hospital, situated a short distance east of the fort. The coast all the way from Semarang to Cheribon is flat and sandy, and suitable for a landing. Houses for officers and barracks are to be erected here (1918).

SOERABAJA.—The chief town of the province of the same name, and equal in importance to Batavia, is situated on the River Mas (Kali Mas), near the southern end of the Madoera Straits, which separate Java from Madoera, and are a mile and a half wide, opposite the town. The Mas and its eastern branch, the Pigirian, which also runs through the town parallel to the Mas and half a mile from it, are only fit for native boats, being merely 3 to 4 feet in depth.

The communications of Soerabaja are excellent in every direction, both as regards land, sea, and cable.

Water is brought by pipes from Kasri, 8 miles south-west of Bangil.

Town.—The town consists of three portions; the official quarter, nearest the sea; the European quarter, commencing about one and a half miles from the shore; and, beyond this, scattered over a large area, the Chinese and native towns, the whole extending inland some 5 or 6 miles. The various waterways in the town are crossed by 12 large road-bridges and numerous ferries.

On the Mas, just north of the Great Post Road, is the arsenal. South of this road and filling up the space between the Mas and the Pigirian are barracks and the central railway station. Another barrack lies just south-east of the magazine. The artillery workshops are just north of the railway station, on the right bank of the Mas.

The west bank of the Kali Mas has a railway along it for 1½ miles from the arsenal seawards; on the east bank the railway runs from the arsenal and the station as far as the mouth of the river.

At the north end of the railway, on the west bank of the Mas, is the magazine. A mile and a half S.S.W. of this and just north of the Grand Post Road, is the Government ammunition factory. This establishment can turn out 8,000,000 rounds of ball ammunition for small-arms in the year, the component parts being brought from Holland.

Naval depôt and docks.—To the immediate east of the mouth of the Kali Mas are the naval depôt and docks.

The naval depôt, between the mouths of the Mas and Pigirian, has modern mechanical and engineering appliances sufficient for repairs to small vessels. There are sheers capable of lifting 50 tons.

The naval basin, which forms part of the depôt, is over 250 yards square and has a depth of 34 feet.

The eastern entrance was deepened about 18 inches during 1907–08. The Budget for 1909 contains a grant for further improvements. According to Dutch press reports, these are to include the deepening of the western entrance—in order to save

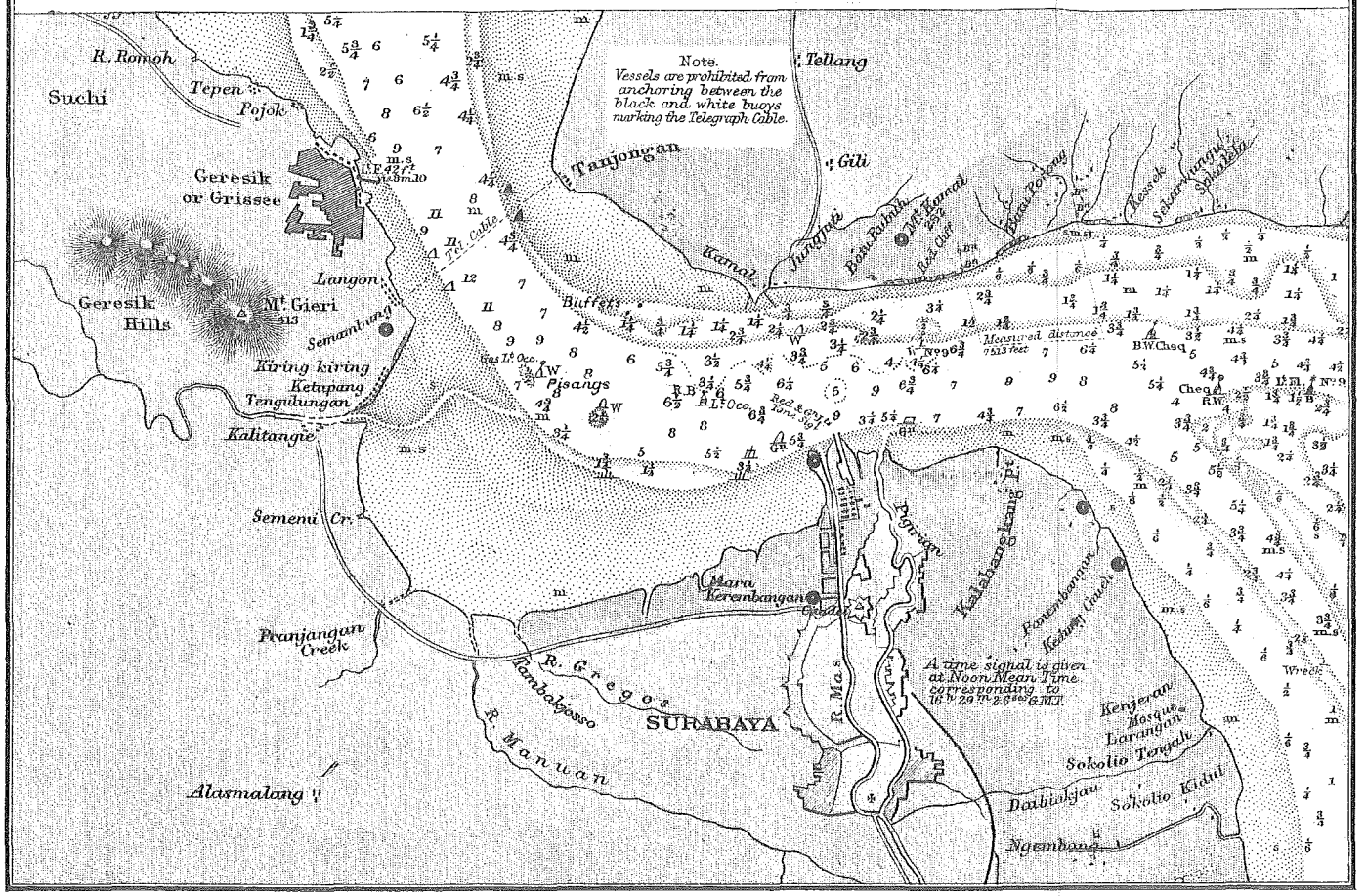
SURABAYA

Taken from Admiralty Chart No. 934

Scale $\frac{1}{133527}$ or 1·422 Inches to 3 Miles

1 ½ 0 1 2 3 4 5 6

The supposed position of defensive works is indicated thus



Topographical Section, General Staff No. 2011.

War Office, Feb.y 1919.

vessels which come from the west from having to go right round the island of Madoera. It is also hoped to relieve the congestion of light traffic which at present prevents the quick despatch of large vessels.

Docks.	Length.	Breadth of entrance (H.W.O.S.).	Depth on sill (H.W.O.S.).	Lifting capacity.
	feet.	feet.	ft. in.	tons.
1. Floating (1880) ...	322	62	22 6	4,800
2. Floating (1888) ...	196	59	16 0	1,350
3. Floating (1912) ...	300	?	19 8	3,400
4. Floating (1918) ...	459	82	?	14,000
5. Graving (N.I.I. Company).	190	30	8 0	?

There is usually a stock of 3,000 tons of coal and 2,000 tons of liquid fuel kept.

Anchorage.—The anchorage, which is good and safe for the largest sized vessels (being sheltered by the island of Madoera) at all seasons of the year, is in 8 or 9 fathoms, about half a mile to the north or N.N.W. of the mouth of the Kali Mas. During the north-west monsoon it is advisable to anchor a little further out, where the holding ground is stiffer.

Defences.—West of the town the country is cut up into fishponds, extending about 2½ miles inland from the coast, along which runs a line of tall brushwood. These ponds can practically only be crossed by the main road to Grissik (Grisee). South of this belt of fish ponds and east of the town are swamps and rice-fields, crossed by a few roads.

The whole country near the town is low and flat, but about 4 miles from the coast and south-west of the town there is ground which rises to about 60 feet above sea-level, and near Grissik, about 7 miles west of the town, there is a range of hills 400 feet high.

Although this town is of great military importance, in that it is the headquarters of the Third Military District of Java, and contains the only naval dockyard in the Dutch East Indies, it is only within the last five years that any serious defensive measures have been adopted there.

The port is naturally well defended from the sea side, a very difficult, shallow, and winding passage only leading to the roads or straits of Madoera. The island of Madoera forms a natural protection to the port and town.

On the map of Soerabaja and vicinity it will be seen that certain localities are marked as being the probable sites of defensive works. From this it must not be implied that no others exist, for very little information has been published concerning these works.

As far as is known, the west approach to the town is closed by a battery just south of Grissik (six 6-inch B.L. guns, 150 feet

above sea), and the eastern approach by two batteries about 3 miles east of the town, and by another near Kamal on the island of Madoera, opposite Soerabaja, 400 ft. above sea, and with a good command of the strait. The town, itself appears to be covered by one battery immediately west of the mouth of the Kali Mas (six 6-inch B.L. guns), and by a redoubt immediately west of the town and on the main road leading to Grissik. There is also a redoubt for infantry and machine-guns immediately north of the old Prins Hendrik citadel, close to the dockyard, and commanding the railway, tramway, and wharves. These redoubts are of earth, square on plan, with sites about 80 yards long and traverses, &c., inside. They have, however, a restricted field of fire, owing to buildings, &c.

In 1900 the Colonial Minister stated that the works at Soerabaja would mostly be armed with 28-cm. (11-inch) ship's guns, and some of these were duly mounted; but the soil was not sufficiently solid to bear their weight, and 15-cm. (6-inch) Q.F. guns were sent out in 1901 to replace them. As the soil of Madoera and that near Grissik is of a more solid nature, it is possible that the heavier armament has been retained in the batteries near Kamal and Grissik, but this is merely conjecture.

In 1902 it was stated in the Colonial Report that "the batteries for the defence of the eastern channel were provisionally completed," and in the following year all the batteries at Soerabaja were reported to have received their armament.

These references to completion and armament appear to point to no further works being then under construction.

In 1903 it was stated in the Colonial Report that a second line of defence existed at Soerabaja, and that this was completed as far as was possible in peace time. Nothing is known about this second line, but it might possibly refer to an old line of fortifications which formerly surrounded the main town, and of which the ditches and some of the detached works still exist.

All the coast batteries for the defence of Soerabaja are to be manned by the navy.

As regards the garrison of Soerabaja which would be available for its defence, (*see* remarks on the garrison of Batavia, page 83).

The approximate normal garrison of Soerabaja is as follows:—

1 field battalion	760
2 mobile batteries fortress artillery	250
Naval garrison of works (say)	200
Schutterij	484
Total	1,694

The actual strength of the troops of the IIIrd military district of Java is given in detail in Appendix III., pages 163 and 164, the

total amounting to 3,580 officers and men and 273 horses, in addition to 12 field guns, 6 mobile fortress guns, and 12 (?) machine guns.

PROBOLINGGO.—River wharfage for lighters and small craft. There are no defences at this port although the coast offers great advantages to a landing force, being flat and with a good beach. The railway runs along the coast close to the shore, accompanied by a good mainroad, from Probolinggo to Bangil. An immense amount of local transport is available, consisting of pony and bullock or buffalo carts and wagons. There are about 20 small bridges on the road and railway between Probolinggo and Soerabaja, but only two large ones. All are iron-girder bridges supported on stone piers, the stones being obtained from the rocky river beds.

PASOEROEAN, BESOEKI and PANAROEKAN.—Pasoeroean, Besoeki, and Panaroekan are other places on the sea-coast east of Soerabaja; but these are only open roadsteads and of little importance. There is river wharfage for lighters and small craft at Pasoeroean, as at Probolinggo.

BANJOEWANGI.—Banjoewangi is the capital of, and the only town of importance in, the whole district of that name. It is situated 6½ miles south of the narrowest part of Bali Strait. It is of importance as being the landing-place of the submarine cables connecting Java with Australia.

The district of which it is the outlet is the most mountainous and thinly populated in the island, but is very fertile. The climate is hot and unhealthy.

Banjoewangi is the terminus of the land telegraph lines and of the State railway. It is also the terminus of the Great Post Road.

Vessels have to lie in a roadstead rather exposed to the south-east, but protected from the north-west, monsoon.

Provisions and water are abundant.

PATJITAN.—Patjitan is on the south coast of Java, in Madioen, and about 240 miles from the eastern point of the island. Its importance lies in the fact that, except for Tjilatjap, it affords the only possible port of refuge on the south coast of Java.

The bay on which the town lies is about 2 miles in depth, with a width at the entrance of about a mile. Being completely open to the south, the anchorage is not very safe.

Patjitan is of very little commercial importance.

TJILATJAP.—Tjilatjap, opposite Kembangan Island, is the most important town on the south coast of Java, and the only harbour on that coast worthy of the name. It is covered from the south by the eastern end of Kembangan Island, which thus forms the harbour.

The harbour is roomy, and is safe at all seasons of the year, but during the east monsoon ships cannot anchor astride on account of the heavy swell and breakers.

Provisions of all kinds are abundant, and good water is obtainable on Kembangan Island, where a brick aqueduct and reservoir facilitate watering. The place, however, has the reputation of being unhealthy. The town itself, though lying very low, is built on sound ground, but the vicinity is a swamp.

There is a Government coal-store on west side of the town and near the railway station ; the latter is about 1½ miles west of the entrance to the harbour.

Trains can run down to the wharf at the station ; the wharf is 300 yards long ; by the wharf are two long sheds with lines of railway both between and outside them (three lines in all).

On the wharf is a 15-ton crane, which can transfer cargo direct from the ship on to the train, and two 3-ton travelling cranes.

There is a depth of about 27 feet of water alongside the quay.

Tjilatjap is connected by road, railway and telegraph with the main systems of the island. The railway junction for Tjilatjap is Maos. There is a telephone to Tjimahi. But for the single road and railway there are, however, no other communications with the rest of the island, the neighbourhood of Tjilatjap being an impassable jungle. In addition, the coast is rockbound, inaccessible and surf-beaten. So that Tjilatjap is entirely unsuitable for a military landing.

Kembangan Island is rocky, and attains a height opposite the southern point of the town of about 90 feet.

Defences.—The mouth of the harbour is covered by three old batteries.

The extent to which these have been brought up to date, and the nature and condition of their armament, are unknown. It is reported, however, that in 1910 the coast battery on the Tjilatjap side was in a serviceable condition, and that it was armed with four 6-inch disappearing guns.

In 1902 the Colonial Minister stated that the purchase of Q.F. artillery for this place was not then contemplated ; but the fact that, as far as is known, these works have not been struck off the list of defences appears to point to the possibility of their being occupied in time of war.

As far as is known, there is no garrison in Tjilatjap.

The Bandoeng Plateau.—This plateau lies in the northern portion of the Preanger Regencies, with the town of Bandoeng (population 30,000) near its centre. It is roughly circular in shape, and from 30 to 35 miles in diameter. It is drained by the Tji Taroem, which flows from east to west until it turns north near Radjmandala.

Tjipadalarang is on its western edge, Tjimahi lies half-way between Bandoeng and Tjipadalarang, Tjitjalengka lies on its eastern edge ; all four places are rather over 2,000 feet above sea-level. The railway and main road pass through these places,

and a main road joins Bandoeng to Tjirebon ; there are otherwise no good roads on to the plateau. Access to it is, therefore, difficult. The range of hills which bound the plateau on the north and south are about 6,000 feet in height, those to the east and west about 3,000, except where the Tji Taroem makes its exit.

The mountains on the northern side of the plain are less steep and rugged than those on the south. Whereas the hills on the north are heavily wooded and only traversed by a few forest paths, those to the south are mostly cultivated nearly to their summits, and there are tea plantations on their lower slopes. To the north lies the volcano Tangkoeban Prahoe, 6,734 feet above the sea, which can be ascended by a fairly good riding path. Several mountain roads cross the high ridge east and west of Tangkoeban Prahoe. The main road that runs east and west parallel with the railway is the most important, giving access to the plain ; in addition, the old main road, built by general Daendels in 1809, *vid* Soemedang to Cheribon, is also important. The railway, in its ascent to the plateau, passes over many remarkable girder bridges, which form deep ravines ; the engineering work necessitated by the construction of the railways has been very heavy. It is reported that the military authorities have prepared an elaborate scheme for the destruction of important bridges should it be necessary to retard an enemy, and, as railway bridges are very numerous in Java owing to the great number of small rivers and mountain streams, the delaying of an enemy's advance ought not to be difficult.

The reason for the importance of this locality has already been indicated on p. 77.

That its use as a second line of defence is contemplated by the Dutch Colonial Government is evident from statements to that effect in Parliament.

The expressions used in the Memorandum explanatory of the 1904 Estimates, as far as the latter concerned the Bandoeng question, were as follows :—"The troops to be concentrated at Batavia in the event of an attack on that place must have a safe line of retreat to the interior, and a series of magazines and workshops is to be constructed which would make the continuation of operations possible.

"The removal of the headquarters of the army from Batavia to Bandoeng, as well as that of the ordnance shops from Soerabaja has also been contemplated, but the expense of these moves is more than the Government feel justified in incurring at present." The "Straits Budget" in October, 1904, stated that "it is no secret that the key-point of the defensive system of Java lies at Bandoeng."

The protection of the approaches was to cost £70,000 of which £51,000 was to be for guns and ammunition, the remainder to be spent in the construction of simple batteries.

Except for the fact that a battery was to be erected near Tjimahi, nothing is known of the manner in which the large sum voted was to be expended.

With the same object in view a military bakery has been erected at Tjimahi, and the railway coal depôt has been moved from Tjilatjap to Bandoeng.

A magazine for explosives was to be constructed at Tjimahi.

At Bandoeng there are more magazines, each 30 yards long, separated by traverses, the whole surrounded by a barbed-wire fence. There are barracks at Tjimahi.

The aviation centre of the Dutch East Indian Army has been established at Bandoeng.

The total troops in the IVth Military District numbered in 1916, 7,268 officers and men, with 923 horses, 12 field guns, 6 mobile fortress guns, and 12 (?) machine-guns. Of these the infantry comprised 3 field and 1 depôt battalion with a machine-gun company. There were 5 companies of engineers.

The remarks on p. 83 regarding the Batavia garrison apply equally to the Bandoeng Plateau, and presumably, if they do not allow themselves to be caught, the troops at Batavia would be withdrawn, and would be available for the defence of the Plateau.

THE MAGELANG PLATEAU.—For some time past the military authorities have been paying much attention to Magelang and the surrounding country. This district is a plateau about 2,000 feet above sea level, approached by good roads, which, however, become rather trying in wet weather on account of the mountainous country through which they pass in the Ambarawa district. Approaching the plateau from Semarang, the country rises to a height of 5,000 feet above sea-level. This plateau is said to be almost as good a place for defence as the Bandoeng plateau, and it is intended to make this place to Central Java what the Bandoeng plateau is to Western Java. No details of defence works are available, and it is improbable that any have as yet been constructed. The headquarters and barracks are to be extended. At present there are at Magelang 3 field battalions: 1 at Gombong; with Mountain Artillery at Banjoe Biroe; the total force of the IInd Military District being 8,287 officers and men, 979 horses, 36 guns, and 24 (?) machine-guns (5 field battalions, 1 native infantry battalion, 1 depôt battalion, 1 machine-gun company, 4 squadrons, 3 mounted batteries, &c.).

POERWOREDJO.—An important town in south central Java on the southern edge of the Magelang Plateau. A fort is being built here (1918).

MALANG.—A garrison town in East Java, 1,500 feet above the sea; population about 60,000. There are two groups of barracks enclosed in barbed-wire fencing. One group lies on the main road, the enclosure being quarter of a mile square. The men's barracks are on one side and the officers' on the other. Married officers have separate bungalows along the main road. The other group of barracks is retired from the road, with a grassy drill-ground half a mile square in front and an open plain of waste ground with a rifle-range behind. In this plain is a small magazine. In the town is a spacious and well-kept military hospital.

SUMATRA.

SABANG BAY (PULO WEI).—Sabang Bay is situated in the island of Wei (Poelo Wei), and is frequently referred to, incorrectly, both in Dutch and English publications as Poelo Weh or Pulo Way.

As will be seen from the map, this harbour occupies a most advantageous position on one of the chief trade routes of the world, and that it should eventually divert much traffic from Singapore is the desire and object of Holland and of the Sabang Bay Coal and Trading Company, which latter is now engaged in developing the place. Sabang has excellent wharves, godowns, subway, docking, and coaling arrangements, and can compete in these respects with Penang. The tariffs for docking are lower than at Penang or Singapore. There are no harbour dues and no pilotage charges.

The coal-wharf is 530 yards long, with 27 coal-sheds of 60,000 tons storage capacity. Depth of water 30 feet at low water spring tides, and three warehouses for cargo.

In order to avoid any delay to vessels calling for coal when all the wharves are occupied, two steel lighters have been constructed on the spot, each capable of carrying 125 tons of coal to the steamer, which would be moored to a buoy in the harbour about 300 yards from the shore. There is also a 900-ton lighter motor-driven, with transporter, probably capable of unloading at a rate of about 300 tons per hour.

Coaling is done by automatic machines. Ordinary rate of coaling, 50 tons an hour: can be increased to 100 tons by day or night. The stock of Welsh coal was before the war kept at about 8,000 tons; Indian coal, 30,000 tons; Ombilin coal, 15,000 tons. The floating dock measures 296 feet by 69 feet, is 18 feet 10 inches deep, and can lift vessels of 3,000 tons dead weight.

Large repairs can be effected. In 1911 the main shaft of a vessel of 4,000 tons was repaired. A slip is available for taking up lighters or small craft. Two tanks, each capable of storing 4,000 tons of liquid fuel or similar oil for internal combustion engines, have been constructed. The harbour is completely sheltered from wind and sea, and has a good anchorage of about 1,400 by 820 yards.

A new wharf has been built by Dutch shipping lines to the east of the coal wharves, and there are two large warehouses for the storage of merchandise behind the wharf. The Dutch mail-boats come alongside this wharf and take in cargo transhipped from coasting steamers.

A signal station stands on the hill north of the bay, and is in telegraphic communication by cable with Penang, *viâ* Olele and Medan.

There is a wireless station on the coast north of the town, erected by the German Telefunken Company, which has communicated with Victoria Point, in Burma.

Fresh water supply is very good, and provisions (including ice) are always obtainable.

Water comes from a natural lake lying amongst the hills between 2 and 3 miles away, and is conducted into a reservoir whence it is run down in pipes to the wharves. It has the reputation of being the best water in the East, and costs a gulden (1*s.* 8*d.*) per ton. Water is supplied free to ships of the Dutch Navy. The pipes can deliver direct on board ship at the rate of 50 tons per hour.

There is an ice factory, which, however, is at present capable of turning out only half a ton per day, and that at the heavy price of over 2*d.* per lb. A large number of Dutch gunboats and warships of other nationalities call for coal and water.

All the buildings except the hospital and reservoir are on the same level. There is a low margin to the shore all round the harbour from west to east, which extends inland for some 200 yards at sea level, and then the ground rises rapidly to a height of 100 to 150 feet, where there is a plateau upon which the European civil and military houses are built. A broad road, unmetalled, runs along the shore. There is a hotel.

Fever is very prevalent among the Europeans, Chinese and natives, doubtless due to the disturbances of the soil caused in recent building operations.

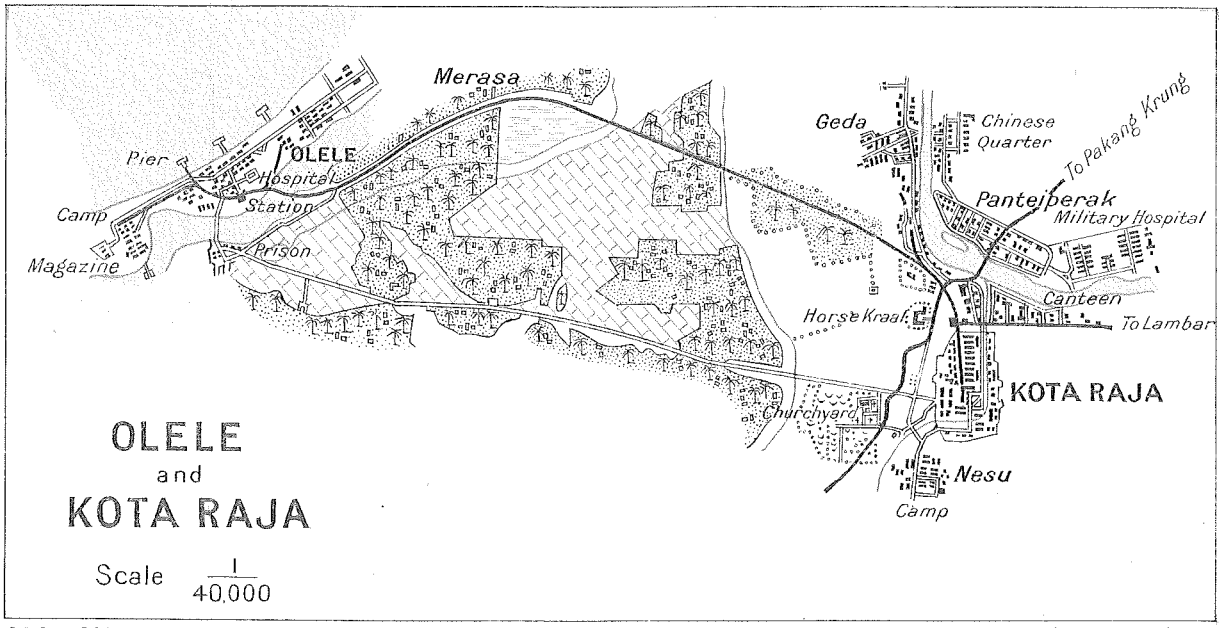
There are not many Dutch civilians, only the employés of the Sabang Company, of some shipping agencies, of a branch of the Netherlands Bank, and of the telegraph office. Of natives there are hardly any. The Sabang Company employs a large number of Chinese coolies, and has built lines for them behind the coal-sheds.

There is a weekly steamer service to Deli, a service every other day to Olele, and a fortnightly service to Padang and Batavia.

Defences.—The bay faces north-west, the north end of the northern horn of the bay covering both the interior of the bay and the approach to the harbour from the north. The whole bay is bounded by hills of about 100 to 150 feet in height, and covered with dense vegetation.

In the Colonial Report for 1903 it was stated that "batteries are being built for the defence of Poelo Weh as far as available labour permits." On the outbreak of the Russo-Japanese war in 1904 the work was given a fillip, the Dutch Government considering that the preservation of their neutrality demanded a show of strength at this coaling station, on which both belligerents might be casting covetous eyes.

During the year 1902 the Minister for the Colonies had stated that "according to international law, Holland could not be required to defend every harbour which forms a coaling station, or is favourably situated for international traffic," but, as seen above, it



G.S.G.S., Nº 2915.

War Office, Febʸ 1919.

was not apparently found expedient to apply this limitation to Sabang Bay.

In the estimates for 1902 it was stated that the defence of this place was undertaken solely with a view to the preservation of Dutch neutrality.

In 1910 the defences of Sabang Bay appeared to consist of three batteries, one on the peninsula north-west of the town, 200 yards south-east of the signal station, and two, near together, on the south-west of the bay. All three are well concealed by jungle. The guns mounted are probably twelve 17-cm. (6·69-inch).

One company of garrison artillery (the 22nd Company) is permanently stationed at this coaling station.

OLELE.—Olele (Oeleë Lheuë) near the north-western end of Atjeh, is the port of Kota Radja. It stands on a spit of sand between the sea and a lagoon. (*See* sketch map opposite.)

There is a fairly large town with permanent barracks and large store-houses along the shore. It is connected by steam tram and by a wooden road bridge with Kota Radja, the capital of the province, about 3 miles inland. There are no defences, no garrison, and no coaling facilities, a small stack only of Ombilin coal being kept for Government steamers. There are one iron and two fair-sized wooden wharves with large store sheds; the stores for the Atchinese war are all landed here.

Steamers have to anchor about 250 yards or more from the shore, goods being landed in small boats and barges.

The railway station is only about 200 yards from the jetty and a continuation of the line runs down to the jetties, so that goods can be easily loaded into the trucks at all three landing places.

A telephone line runs along the line to Kota Radja.

Kota Radja is no longer so strongly fortified as it was, the line of outer works having been abolished.

The garrison consists of three battalions of infantry and a commissariat cadre.

At *Tjalang*, on the north-west coast, there are no defences, but an iron pier 60 yards long. The garrison consists of a detachment of infantry 160 strong.

At *Meulaboh* and *Tapa Toean*, also on the north-west coast, there are similar piers and garrisons of about the same strength as at Tjalang.

Si Bigo, *Sinebang*, *Singkel*, *Baros*, and *Sibolga* are small ports of no importance, without facilities or defences. The same may be said of the small ports in the *Nias Islands*.

LANGSAR BAY.—It is intended to develop *Kwala Langsar Bay*, in the north-east of Sumatra (Atjeh dependencies), as a harbour. Barracks have been built and the place has been connected with the Atjeh steam tramway system. It is stated that the Royal Packet Company's steamers can enter the bay at all tides (14 feet

low and 23 feet high water). The shore is, however, cut off from the country inland by a belt of marshy ground, which prevents the railway from running right up to the harbour.

BELAWAN.—Belawan, on the north-east coast, is a most important harbour, tapping as it does the whole of the tobacco districts of Deli, and supplying Medan. It lies on an island, composed chiefly of mud and mangroves, in the Deli River. On the east side is a fishing village, on the west the town and harbour. Much of the island is flooded at high water.

It is a terminus of the Deli railway. There are no defences and no garrison.

There are several wharves for the use of the various trading companies, also a Government coal-wharf, but no repairing facilities, and no coal stocks except a small amount of Ombilin coal for the use of Government steamers.

Good drinking water is obtainable from an artesian well near the station. Supplies have to be sent for from Laboean Deli.

This port is very unhealthy.

The following paragraph is taken from the "Straits Budget" of 28th April, 1904:—

"The harbour of Belawan, the chief port of Deli, stands badly in need of dredging. The Government has only one dredger available which has to do duty at so many other ports on the coast that Belawan is neglected. The result is that Belawan harbour is getting silted up at the entrance, to the great inconvenience of the shipping and trading community. Vessels frequenting that port so often became damaged that their repairs cost considerable amounts. Some shipmasters now refuse to cross the sandbank at the entrance to Belawan, except at high water. The result is that their time table hours become now irregular."

In 1910 it was arranged to dredge the northern entrance of the Deli river to a depth of 14 feet; this will permit the entrance at high water of vessels with a draught up to 21 feet. At present there is only 7 feet at low water.

In 1918 it was decided to improve the harbour further. The town of *Medan*, of which Belawan is the port, has a population of about 15,000. There are no defences or permanent works. The garrison consists of about 300 infantry. Medan is important as the junction of the Deli railways (*see* p. 61).

Tandjong Poera.—The bar at the mouth of the river of the same name is one of the worst on the whole coast of Sumatra. Both it and the channel are constantly shifting, but 15 feet of water can be found the whole way up to Tandjong Poera itself, which is 4½ hours steaming, at 9 knots, from the mouth.

Just below the harbour are the wharves of the Langkat Oil Company, which produces over 400,000 cases of oil per annum.

Tandjong Poera has a street about half a mile long, and, being a tobacco centre, has several European inhabitants. The district is peaceful and is highly cultivated.

Bajan is situated on the north coast of Sumatra almost opposite Penang.

The coast is an unbroken line of mangrove swamp right to the water's edge, and the entrance to the mouth of the river on which Bajan stands is hard to find. Once over the bar there is plenty of water throughout the hour and a half steaming before reaching Bajan. There is a small wharf where steamers can tie up to trees alongside.

Bajan consists of two clearings in the jungle, each of about 10 acres, one on each side of the river.

The wharf is on the north bank, where are also a small military barrack, a small police barrack, and two bungalows for European military and civil officials. These are all crowded together, and are surrounded by a formidable barbed-wire entanglement about 12 feet high. Near this, for about 70 yards, run "*attap*" (leaf) sheds, containing stores kept by Chinese. A timber blockhouse commands this street, and is occupied by about 20 men.

It is unsafe to leave the village, except with a strong escort. Small steamers do not stay the night for fear of piracy.

A tram runs along the coast in both directions.

PALEMBANG, the capital of the residency of that name, is situated on both banks of the River Moesi, and about 50 miles from its mouth. It is about 6 miles in length, but less than a mile in width. Most of the Europeans live on the left bank, near the fort and military buildings. In the channels through the bar which fronts the delta of the Moesi River there is a depth of from 9 to 12 feet, each of the four arms by which the river discharges itself into the Banka Straits having a depth inside of from 3 to 8 and even 10 fathoms. Off Palembang, where the river has a width of over 400 yards, there is from 4 to 9 fathoms, with a rise and fall of tide varying from 10 to 16 feet.

Palembang is a Government coaling station. No defences.

The town is connected by good roads with Benkoelen on the west coast.

It has a population of about 50,000, and is considered very healthy. It is insected by numerous creeks, which are crossed by about 60 bridges. Most of the houses are built on piles, this being necessitated by frequent floods.

Many families live in houseboats or in huts built on rafts; these line the whole of the right and part of the left bank of the river.

Cotton is the chief export. It grows wild in large quantities up the river, and is brought down to Palembang in covered native boats.

Meat and vegetables are cheap and plentiful.

EMMA HAVEN (native name, Telok Bajoer) is the port of Padang, and lies about 3 miles south of it. The harbour, constructed in 1892, has been formed by the construction of a breakwater $\frac{1}{2}$ a mile in length, which encloses a space of about $\frac{1}{2}$ a mile square, sheltered from all winds. The average depth is 28 feet.

Emma Haven is connected by rail with the Ombilin coalfields, which produce about 400,000 tons annually. All the exported portion of this passes through this place, which is also the port of Padang, Padang Pandjang, and Fort de Kock.

There are two steam cranes, with a lifting power of 3 to 4 tons, and also hydraulic cranes for loading and discharging cargo. A raised coal-shoot loads coal direct into steamers.

There are warehouses, three berths alongside the wharves each about 280 feet in length, a fourth berth of 180 feet in length, and a shorter one where the colliers load. The railway trucks run on to the wharves.

A new wharf has recently been built at the western end, at which tank-vessels can unload. Four tanks have been built to hold respectively 2,000 285, 70, and 15 tons of illuminating oil. The new wharf has four lines of rails. Good water is obtainable alongside. There are no defences and no garrison.

PADANG is the capital of the West Coast of Sumatra Province. It lies on what is known as the Padang River, which is formed by the confluence of the Arau and Idal.

Large vessels do not go up to Padang, but to Emma Haven, which is now the port of Padang. Small boats can go alongside at the Padang railway wharf.

Provisions of all kinds are abundant.

Padang appears at first sight to be standing in a forest; this effect is produced by the fact that the town is intersected by numerous broad streets, each forming an avenue of wide-spreading trees. In addition to this the houses have large gardens, which are well supplied with trees.

The climate is very hot and damp, but the town has the reputation of being healthy. The rainfall for 20 years averaged 181 inches.

The principal exports are coffee and spices, but beyond the fact of its being the local seat of Government, Padang owes its prosperity to its port—Emma Haven—being the place from which the produce of the Ombilin coalfields is exported.

There are two steam ice-factories, two printing presses, one mineral-water factory, five Chinese bakeries, and 40 smithies. There is usually a garrison of a battalion at Padang, with another battalion at the inland stations of Padang Pandjang, and Fort de Kock, within call.

BENGKOELEN ("Bencoolen") lies on the south-west coast of Sumatra on the spot where Fort Marlborough was built in 1714 by the British. The residency, formerly the British Government House, is a large two-storey stone building, and close to it, bordering on a large park, are the other Government buildings. There are no defences.

The town is unhealthy.

Meat and vegetables are procurable, also water from a cistern near the landing-place.

Coal-fields, 8 square miles in extent, have been found at Boeket Soemoer, 30 miles distant by road. Cargo must be landed in

boats which, by local climatic conditions, are limited to one trip each way in 24 hours.

The boat wharf is 60 feet long, and has 3 feet of water alongside.

Celebes.

Makasser ("Macassar") is the most important trading port in the Dutch East Indies outside of Java, being the emporium of native trade for the eastern part of the Archipelago, as far east as New Guinea. There is also a very large coasting trade with China. The town is clean and well built, lying near the mouth of a small river, with a sea frontage of nearly $2\frac{1}{2}$ miles. The surrounding country is low and flat, and is laid out in rice-fields. The *Koningsplein* ("King's Square"), a fine open piece of ground, about 1 mile in length by a $\frac{1}{4}$ of a mile in breadth, extends in rear of the southern portion of the native town. Part of this *plaza* is used as an infantry rifle range; beyond it again is an artillery range, and to the north of the latter is a large hospital. There are large Chinese, Malay and Bugi quarters. The water supply is from wells, and is said to be good, though rather chalky.

A continuous stone quay, 530 yards long by 27 feet wide, with a depth of, at least, 36 feet alongside at all tides, has now been built. There are also two coal wharves, one for merchant shipping and the other for men-of-war, which are situated at the north end of the town, about 300 yards apart. Vessels of 2,800 tons can go alongside the wharves to coal. About 5,600 tons of coal were in stock when the place was visited in the winter of 1907; there was no liquid fuel available. There are lighters in the harbour for watering ships. The swampy shore has been partly reclaimed, and six large sheds have been built upon it. The harbour is sheltered by a line of shoals and islets.

In November, 1911, a contract for enlarging the harbours was placed with a Dutch firm at a cost of 200,000*l*. The scheme included the construction of a quay wall, 600 yards long, with a minimum depth of 34 feet of water, the creation of a harbour having 130 yards of wharves and a depth of 29 feet, and a provision of warehouses covering an area of 720 square yards. It is proposed to sink some old hulks on a sand bar which runs between two islands parallel with the wharf and about $\frac{3}{4}$ mile from it. This sand bar at present only forms a partial breakwater for the harbour.

Defences.—An obsolete, bastioned, stone fort, Fort Rotterdam, stands about in the centre of the town, on the sea-shore. This is occupied by the infantry of the garrison. The artillery are accommodated in another obsolete fort, Fort Vredenburg, east of Fort Rotterdam; the prison is close to it. South of this are the military hospital and the infantry and artillery ranges.

The European quarter is immediately north of Fort Rotterdam.

Menado, the capital of the Minahassa district and the seat of the Resident, is situated on the left bank of a small river which

discharges into the head of Menado Bay. In the western portion of the town stand the residency, the prison, the government offices, and the covered market, all under cover of Fort Amsterdam.

The anchorage is a bad one, and only available during the south-east monsoon, as the bay is completely exposed to the heavy sea of the westerly monsoon. Even during the south-east monsoon the anchorage is unsafe.

The exports are coffee, spices and vanilla.

Beef, pigs, poultry, fruit and vegetables are procurable.

There is a good road across the mountains to Kema on the opposite coast.

Defences.—Fort Amsterdam, obsolete.

Kema forms a useful complementary port to Menado, according to the prevailing monsoon; from April to November ships anchor off the latter place, which is quite protected from easterly and southerly gales, while from November to April the anchorage at Kema alone is used.

There is a pier in the middle of the beach at which boats can land at high water.

Borneo.

Bandjermasin, the capital of the South and East Coast District of Borneo, is situated in the south of the island near the junction of the Martapoera with the Baritoe river. The town is about 14 miles from the mouth of the latter river; the official quarter lies on an island formed by two branches of the Martapoera, and close to a large obsolete square fort, one side of which lies along the river bank. The Chinese quarters are on the left bank of the Martapoera, opposite the fort. The European quarter includes commodious barracks, a good hospital, club house, general warehouses and other buildings.

Bandjermasin is the harbour for the principal military stations of the island and for all the Baritoe basin. A great quantity of trade accordingly passes through it, the up-country traffic being all water-borne.

Numerous vessels of as much as 11 feet draught visit Bandjermasin during the year.

The natives are famed for boat building, and construct large sampans of ironwood.

There is one small iron works and a foundry in the town.

In order to establish communication westward, the Baritoe river has been connected with the Kapoeas river by a canal which joins the latter river about 43 miles from its mouth.

The Pengaran coalfield is situated about 60 miles above Bandjermasin, on the Martapoera river.

Supplies and water are plentiful.

Balikpapan.—The port of *Balikpapan* has risen in importance during the last two years, and now ranks fourth in the Netherlands East Indies as regards tonnage of vessels entering and clearing.

The chief export trade is in oil, from the fields on the River Mahakam, 50 miles away, which is supplied as fuel for steamers of the Royal Packet Company. The population numbers 4,500, of whom 315 are British subjects. No defences.

The place is situated on the wooded shore of a bay, of an average depth of 35 feet. There are several large oil tanks, painted red, on the shore, each holding 4,000 tons of oil. There are also an oil refinery, a large benzine tank, &c. The raw petroleum comes from *Samarinda*, further down the coast, in hopper steamers.

Pontianak, the capital of the West Coast District, is situated on the southern bank of the northern mouth of the Kapoeas river.

Although Pontianak lies on a mud flat under the equator it is not a very unhealthy place. Its position makes it the port for the whole basin of the Kapoeas river, but trade with this district is not very brisk, and Pontianak cannot be considered a very thriving port. Its importance has lately been slightly increased by its becoming a cable station between Batavia and Saigon.

The anchorage is about 5 miles from the town.

CHAPTER VIII.

Military and Naval Forces.

Composition and Strength, &c.—The Netherlands East Indian Army is purely colonial: no portion of the regular home army is sent on colonial service, but individual soldiers are at liberty to enlist in the East Indian Army, and it is these men who form the backbone of that army.

At the end of 1917, compulsory military service was introduced into the Netherlands Indies. The reasons for the change from the old voluntary system were the cost of the latter and the shortage of recruits, which, in June, 1915, amounted to over 30 per cent. Compulsory service is imposed on all European Netherlands subjects in the Indies. The age of enlistment is 19 years; the period of service in the Active Army (Militië) is 8 years, and in the Landweer 5 years; total 13 years. The first training period is not to exceed that of the Home Army repetition trainings. Repetition trainings to be held once every 3 years, each not to exceed 16 days. Netherlanders settled in the East Indies who have done a first training at home are to be liable for repetition trainings only in the colonies. It is suggested that young prospective colonists shall be encouraged to do their first training in Holland before leaving, instead of being exempted as at present. It is proposed in 1918 only to enrol sufficient conscripts to make up the shortage of the existing formations and to augment the war strength of divisions.

The introduction of conscription has not been well received by the men of the old voluntary army, and there is said to be a good deal of discontent among the latter, owing to the alleged intention of treating the conscripts better than the volunteers, giving them better barracks and food, &c.

For the present conscripts are not to be employed in police expeditions to the outlying possessions, and it is proposed for the time being to retain the voluntary principle in the case of natives in order to accustom them gradually to the idea of compulsory service by seeing how it works in the case of Europeans. Eventually the conscription will be applied to all natives also, irrespective of race.

At the present moment (1919) the army has already entered into a state of transition from the old voluntary to the new compulsory service, which will involve considerable modifications of existing formations and extension of military organization. The following description is therefore to be regarded as provisional only.

The European and native soldiers are not divided into separate corps, but European companies and native companies together form battalions. The field artillery has native drivers, but the gunners are nearly all Europeans or half-castes. In the cavalry and garrison infantry all races are mixed up together.

The experiment is now being tried of having mixed infantry companies made up of some European and some native sections (*see* below). Thus at all times European soldiers may come under the command of native non-commissioned officers, and the European and native rank and file mix far more than with us in India, travelling in the same carriages on the railway, &c. The only distinction is that the Europeans have separate barracks.

Under the head of "Europeans," the Dutch include, in their official publications, half-castes and Japanese; these are on a footing of perfect equality with the white men.

Although natives who are Dutch subjects can, if they have been graded in Holland, become 2nd lieutenants, all the commissioned officers are European, with the exception of a few natives of high rank who hold honorary commissions.

In the "Nieuwe Rotterdamsche Courant" of the 28th March, 1905, it was stated that it was intended to reintroduce native officers into the army. The career would only be opened to the native aristocracy, and the rank of captain would probably be the highest to which they could rise. In the following year an attempt was made to train native cadets for promotion to officers, but it does not seem to have been a success.

In each purely native company at least half of the non-commissioned officers must be Europeans.

The nationalities of the Europeans serving at the end of 1916 are given in the following table :—

Country of birth.	Officers and N.C.Os. acting as such.	N.C.Os. and men.
Holland	817	6,061
Netherlands East Indies ...	451	1,815*
Belgium	3	77
Germany	18	625
Other countries	21	71
Total	1,310†	8,649†

The number of officers increased in 1916 to 1,310 and that of the non-commissioned officers and men to 38,811. Since the outbreak of the European war the number of German non-commissioned officers and men has been reduced by one-half.

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* Includes 673 born of European or Eurasian parents in the East Indies, and 1,142 natives.

† This total does not include 373 officers detached on duty or leave in Holland or the West Indies, and placed on the honorary or non-effective lists.

The following table shows the numbers of natives of different races serving in the various arms in 1916 : —

Race.	Infantry.	Cavalry.	Artillery.	Engineers.	Hospital service.	Train.	Military clerks.	Military officers school.	Remounts.	Total.
Amboinese	8,805	...	...	...	572	...	126	...	...	9,503
Javanese	14,579	360	1,610	341	532	394	1	4	33	17.854
Sundanese	1,487	90	86	33	59	20	...	...	17	1,792
Madoerese	135	...	5	4	7	...	...	...	...	158
Buginese	34	...	1	1	...	...	...	...	...	36
Timorese, &c. ...	1,027	19	2	1	15	2	...	...	...	1,066
Totals	26,067	469	1,704	380	1,185	416	127	4	50	30,402

Of the Amboinese, 3,519 came from the Moluccas, 5,925 from Menado, while 59 were Alfurs. Of the Timorese, &c., 910 were from Timor, 3 from Nias, and 153 from other islands. It will be noted that there are very few Sumatrans in the army. Of 2,375 Moslems recruited in 1916, 829 deserted in the same year. This is ascribed partly to discontent at supposed favouritism to Christian soldiers. In the same year there was a shortage of 3,663 men in the European contingent of the army and a superfluity over establishment of 6,370 natives. In 1912 the proportion of soldiers to civilian inhabitants was as 1 to 1,000, and of European soldiers (exclusive of Germans) as 1 to 4,000.

The normal establishment of the Netherlands East Indian Army (as fixed by the Sovereign) in 1915 was 1,292 officers, 34,258 men and 2,388 horses. The army estimates are, however, based upon a "temporary" establishment fixed by the Governor-General. For 1915 this establishment was 1,329 officers, 36,104 men and 2,840 horses. The actual strength on 31st December, 1916, was 1,310 officers, 38,811 men and 2,973 horses. Details of this strength are given in Appendices II. and III. The following figures indicate the strength of the various garrisons in January, 1917 :—

Java...	26,076
Sumatra	8,149
Celebes	1,645
Borneo	1,904
Moluccas	739
Sunda Isles	1,111
Total	39,824

(*See* Appendix III.)

Appointment of officers.—Officers are provided in the following different ways :—

By appointment, after passing through the Military Academy in the same way as officers of the home army.
By transfer from the home army.
By attachment from the home army.

Except that the study of the Malay language is compulsory, the education of officers is identical with that of officers of the home army. The course of study for the Indian Army lasts 4 years.

A proportion of vacancies at the Staff College and at the various schools of instruction is always kept open for the colonial army.

European leave is given in the proportion of 1 year for every 5 years of Indian service. Officers have free quarters in India, free passages home on leave, and mess subscriptions are unknown. They are said to come into little personal contact with their men, and the existence of general lists for cavalry, artillery and infantry, which makes it impossible for an officer to know to what unit he will be posted or for how long, does not conduce to interest the officer much in the men whom he is for the time commanding.

In 1916 there was a great shortage of officers. The garrison artillery suffered especially in this respect; not a single battery

had its full complement of officers. And the infantry in Java was being starved of officers in order to keep the detachments in the outlying possessions properly officered with the result that many companies possessed only one lieutenant and four European serjeants instead of the proper strength of three lieutenants and eight European serjeants (*see* p. 120).

In 1919, 25 officers of the active army in Holland were seconded for service with the East Indian Army for periods varying from 3 to 5 years. They were provided by the different arms as below :—

Infantry	16
Artillery	3
Engineers	1
Medical and Veterinary ...	5

Recruitment.—Most of the European soldiers recruited under the old voluntary system are sent out from the Colonial Recruit detachment at Harderwijk, in Holland, which is under the Colonial Reserve at Nijmwegen (*see* p. 119).

Men of all nationalities, except English, Americans, French and Belgians, enlist for 6 or more years' service at the age of between 18 and 36, and may re-engage for periods of 1, 2, 4 or 6 years up to a total of 20 years' service.

European volunteer recruits must be 5 feet 1 inch in height and single. On enlistment for 6 years they receive a bounty of 400 gulden (£33 3*s*.).

During 1915 the following re-engagements were made :—

	Europeans.	Natives.
1 year or less	299	576
2 years	273	2,240
3 years	67	4
4 years	147	1,004
6 years	229	1,101
Total	915	4,934

Of the entire colonial army, from 70 to 90 per cent. are re-engaged men. From this it appears that the service is popular, probably for the following reasons :—

All civil authorities, when filling up situations such as overseers or police superintendents, are obliged to give the preference to qualified old soldiers. The qualifications for such employment are 12 years' service, good-conduct medal, and a recommendation from the commandant of the arm to which the man belongs.

Pensions are granted after 12 and 20 years' service.

A small increase of daily pay is given after 6 years' service. (*See* Appendix IV.)

Non-commissioned officers of the home army may be attached to the colonial army for a period of 4 years (and receive a bounty of £33 3*s*. on being so attached), and this period may be extended by terms of 6 months. They receive a bounty of £2 1*s*. 8*d*. on each extension.

Pay.—The rates of pay of officers, non-commissioned officers and men are given in Appendix IV.

Moral and discipline.—There is no doubt that the discipline of the European forces is lax, and during the past year (1917—1918) Socialistic and almost "Bolshevik" ideas, aided by discontent at conscription and the Home Rule agitation among the natives, with whom the Dutch troops come into much closer contact than do our men in India, have made headway amongst them. "Soldiers' Committees" have been formed, and the military authorities seem to be rather uncertain how to deal with them. Ugly riots are also reported. It is comprehensible that the lazy life of an European army in the tropics, without the distraction of war or hard training, and with the Dutch disinclination for exercise, tends to create mischief and weaken moral.

ORGANIZATION.—The military forces are organized thus :—

1. Staff of the governor-general.
2. Department of war.
3. General staff.
4. Provincial staff.
5. Local staff.
6. Infantry.
7. Cavalry.
8. Artillery.
9. Engineers.
10. Service of military administration.
11. Medical department.
12. Topographical service.
13. Train.
14. Corps of civilian officials.
15. Corps of military clerks.
16. Corps of staff musicians.
17. Military school.
18. Provost and prison department.
19. Maréchaussée, Schutterij and irregular corps.
20. Colonial reserve and recruit depôt.
21. Volunteer automobile corps.
22. Experimental flying detachment.
23. Aeronautical section.
24. Remount depôt.
25. School of farriery.
26. Military railway standing committee.

1. STAFF OF THE GOVERNOR-GENERAL.

The governor-general is *ex officio* commander-in-chief and possesses prerogative power of promotion by selection, and dismissal of officers, up to and including the rank of colonel, without reference to the home Government. General officers must be gazetted in Holland.

His staff consists of 1 lieutenant-colonel, 1 captain, and 1 first lieutenant (naval).

2. Department of War (H.Q., Bandoeng).

This department consists of :—

(a.) *The Military Cabinet.*

This consists of the lieutenant-general commanding the Army of the Indies (in 1919 Lieut.-General C. H. van Rietschoten), and his staff of 1 captain and 1 lieutenant. He bears the title of "Commandant of the Army and Chief of the War Department of Netherlands India."

The lieutenant-general commanding the forces is not a permanent member of council, having no voice in the administration of the colonies, but is summoned to attend council as an extraordinary member when military questions are under consideration. The office of military member of council once existed, but does so no longer.

(b.) *The War Office.*

The War Office has nine sections. Their duties are as follows :—

1*st Section.*—Personnel ; under a lieutenant-colonel or major, with 2 captains and 3 lieutenants. This section deals with the appointment and promotion of officers, recruiting, pay and pensions, marriages of officers, archives of the army, regulations and instructions, orders, decorations and distinctions, administration of estates of deceased officers and soldiers, Schutterij, armed police, and military law.

2*nd Section.*—Infantry ; under the major-general commanding the infantry, with colonel, 1 lieutenant-colonel, 2 captains, and 2 lieutenants.

3*rd Section.*—Artillery ; under the colonel commanding the artillery, with 2 majors and 5 captains. In addition to matters which concern the artillery only, this section also has charge of the armament and equipment of the army generally, and of the armament and equipment of fortresses.

4*th Section.*—Engineers ; under the major-general commanding the engineers, with 1 lieutenant-colonel, 3 captains, and 2 lieutenants. This section has also under its charge :—

(*a.*) "Verbodene Kringen" (forbidden areas) of fortresses.
(*b.*) The maintenance of all military buildings and magazines.
(*c.*) The water supply and lighting of military establishments.
(*d.*) The administration and technical execution of military works.
(*e.*) The preparation of estimates for works.
(*f.*) The engineer workshops.
(*g.*) The engineer troops and workmen.
(*h.*) The steam tramways in Atjeh.

5*th Section.*—Military administration ; under a lieutenant-colonel, with 2 captains, and lieutenants. It has charge of the payment, clothing, feeding, and transport of troops.

6*th Section.*—Medical ; under the senior medical officer (major-general), with 1 colonel, and 1 assistant medical officer.

In addition to the above, who administer the medical services, there is an apothecaries' department consisting of a director and 5 assistants.

7th Section.—(*a.*) Is under the chief of the general staff and deals with questions of organization of the army, and of military expeditions, defences, political and military intelligence and history, movement of troops, defensive schemes, statistics, and other matters.

It consists of a colonel, 2 lieutenant-colonels, 10 captains, and a librarian.

(*b.*) Intendance; under a colonel (chief intendant), assisted by 1 lieutenant-colonel, 1 major, 5 captains and 1 lieutenant of the military administration.

8th Section.—Cavalry; under the lieutenant-colonel commanding the cavalry, with 1 captain as adjutant.

9th Section.—Topographical service, under a colonel, a major, and a captain.

3. General Staff.

Officers of the general staff are appointed by the governor-general, at the instance of the commander-in-chief. The chief of the general staff is a major-general or colonel, and the officers are by choice those who have passed the staff college course in Holland.

The officers of the general staff are :- 1 major, 5 captains, and 6 lieutenants.

4 and 5. Provincial and Local Staffs.

These are for the four military districts into which Java is divided, and have their headquarters at Batavia, Magelang, Soerabaja, and Bandoeng respectively. They also include the commandants of the various commands into which the other islands are divided.

These staffs consist in all of 28 officers.

The Netherlands East Indies are divided into the following 15 military districts :—

1. 1st military district of Java, under a colonel.
2. 2nd „ „ „ „ major-general.
3. 3rd „ „ „ „ colonel.
4. 4th „ „ „ „ colonel.
5. Atjeh and dependencies, under a lieutenant-general as civil and military governor, with a colonel as commandant.
6. West coast of Sumatra, under a colonel.
7. Tapanoeli, under a captain.
8. Palembang and Djambi, under a lieutenant-colonel.
9. Riouw, under a captain.
10. Western Division of Borneo, under a lieutenant-colonel.
11. Southern and Eastern Division of Borneo, under a lieutenant-colonel.
12. Celebes and Menado, under a lieutenant-colonel.
13. Timor and dependencies, under a lieutenant-colonel.
14. Amboina and Ternate, under a lieutenant-colonel.

The four military districts of Java are as follows :—

Ist Military District (H.Q., Batavia).—Batavia, Bantam, and the Island of Billiton.

IInd (H.Q., Magelang).—Semarang, Pekalongan, Soerakarta, Djokjakarta, Kedoe.

IIIrd (H.Q., Soerabaja).—Rembang, Soerabaja, Kediri, Pasoeroean, Besoeki, Madoera, Bali, and Lombok.

IVth (H.Q., Bandoeng).—Preanger, Cheribon, Banjoemas, and Karaganjar.

6. Infantry.*

The infantry consists of—

(*a.*) The staff of the arm.
(*b.*) The field battalions.
(*c.*) The M.G. companies.
(*d.*) The depôt battalions.
(*e.*) The garrison infantry.
(*f.*) The supply cadres.
(*g.*) The disciplinary detachment.
(*h.*) The detachment of cyclist orderlies.
(*i.*) The cadre-schools.
(*j.*) The *Maréchaussée.*

(a.) *The Staff of the Arm.*

Consists of a major-general, a colonel, a lieutenant-colonel, two captains (one of whom is aide-de-camp), and two lieutenants.

(b.) *The Field Battalions.*

There are 21 field battalions, each consisting of the battalion staff and four companies; the average strength per company is about 190 of all ranks. Each battalion is to have a Madsen M.G. detachment (distinct from the independent M.G. *companies* mentioned below).

Battalions are commanded by lieutenant-colonels, with lieutenants as adjutants. Each company is officered by a captain and three lieutenants.

The stations of the field battalions were in 1917 as follows :—

1st, 2nd, 7th		Magelang (II. Mil. Dist.).
3rd ...	...	Banjoe Birce (II. Mil. Dist.) and Atjeh.
4th, 9th	...	Tjimahi (IV. Mil. Dist.).
5th ...	...	Semarang (II. Mil. Dist.).
6th ...	...	Gombong† (II. Mil. Dist.).
8th ...	...	Malang (III. Mil. Dist.).
10th...	...	Staff and 4 companies, Weltevreden. Staff and 3 companies, Palembang and Djambi.

* For "Establishments and Composition of Units," *see* page 120.

† One company temporarily at Tjilatja.

11th, 12th, 16th, 18th				...	Meester Cornelis* (I. Mil. Dist.).
13th	...	...	...	...	Soerabaja (III. Mil Dist.).
14th	...	...	...	...	Buitenzorg (I. Mil. Dist.).
15th	...	...	...	...	Bandoeng (IV. Mil. Dist.).
17th	...	...	...	...	West Coast of Sumatra.†
19th	...	...	...	...	Celebes and Ngawi‡ (III. Mil Dist.).
20th	...	...	...	...	Weltevreden (I. Mil. Dist.).
21st	...	...	...	...	Willem I. (II. Mil. Dist.).

(c.) *The M.G. Companies.*

These are four M.-G. Companies, stationed as follows :—

1st (four sections)	...	...	Weltevreden (I. Mil. Dist.).
2nd	,,	...	Magelang (II. Mil. Dist.).
3rd	,,	...	Malang (III. Mil. Dist.).
4th (three sections)	...	...	Tjimahi (IV. Mil. Dist.).

The sections are presumed to be each of three guns, as in Holland. A fifth company will be mobilized in time of war.

(d.) *The Depôt Battalions.*

There are 3 depôt battalions. The 1st battalion is composed of 1 European and 2 native companies ; the 2nd of 2 European, 1 Amboinese, and 1 native company, and the 3rd of 3 native companies. The total strength of these 3 battalions is about 3,414, and in 1919 they were stationed as follows :—The 1st at Bandoeng (IV. Mil. Dist.), the 2nd at Djokjakarta and Soerakarta (II. Mil. Dist.), and the 3rd at Malang (III. Mil. Dist.). To these battalions are sent men waiting to join their units and to return home on discharge.

(e.) *The Garrison Infantry.*

This is composed of 11 garrison battalions and 3 garrison companies.

The battalions consist of a number of companies, varying from two to seven, according to the requirements of the districts. Every company is composed of Europeans and natives.

The following are the 10 garrison battalions :—

(1.) *Garrison battalion of the West Coast of Sumatra :*—Staff and detachment at Padang Pandjang ; detachment in Nias.

(2.) *Garrison battalion of Palembang and Djambi :*—Staff and detachment at Palembang ; detachment at Djambi.

(3.) *Garrison battalion of Western Division of Borneo :*—Staff and detachment at Pontianak ; detachments at Sintang and Singkawang.

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* One company 18th Battalion temporarily at Poerworedjo.

† Right wing, Padang Pandjang ; left wing, Fort de Kock.

‡ Staff and 2 companies, Malang ; 2 companies (temporarily), Ngawi.

(4.) *Garrison battalion of the Southern and Eastern Division of Borneo :*—Staff and detachment at Bandjermasin ; detachments at Kendangan, Poeroek, Tjahoe Moera Teweh, and Long Iram.

(5.) 1*st Garrison battalion of Celebes and Menado :*—Staff and detachment at Makasser ; detachments at Menado and in Central Celebes.

(6.) *Garrison battalion of Amboina and Ternate :*—Staff and detachment at Amboina ; detachments at Ternate and Piroe.

(7.) *Garrison battalion of Timor and Dependencies :*—Staff at Koepang ; detachments in Soemba, Soembawa, Flores, and Timor.

(8.) 1*st Garrison battalion of Atjeh and Dependencies :*—Staff at Kota Radja ; detachments at Meulaboh, Tapa Toean, Randeng, Lököp, Koeta Tjane, and Medan.

(9.) 2*nd Garrison battalion of Atjeh and Dependencies :*—Staff and three companies at Kota Radja ; detachments at Seulimeum and Sabang.

(10.) 3*rd Garrison battalion at Atjeh and Dependencies :*—Staff and detachment at Sigli ; detachments at Semalanga, Bireuën, Lheu Seumawé, Langsav, and Boelok Blang Ara.

(11.) 2*nd Garrison battalion of Celebes and Menado.*

The following are the three garrison companies :—

(1.) *Garrison company of Soemedang.*

(2.) *Garrison company of Tapanoeli :*—At Taroetoeng.

(3.) *Garrison company of Riouw :*—At Tandjong Pinang.

(f.) *Independent Supply Cadres.*

There are four independent supply cadres, at Batavia, Soerabaja, Bandoeng, and Kota Radja.

(g.) *The Disciplinary Detachment.*

This is established at Ngawi, in the centre of Java, and consists of :—

1 Guard company of the 19th Field Battalion.
1 Disciplinary company (Europeans and natives).

The minimum time for which a man can be sent to the disciplinary company is 8 months. Men are kept at hard work and under very severe discipline.

(h.) *Cyclists.*

There is a section of cyclist orderlies at Weltevreden and Salatiga ; Headquarters, Bandoeng.

A small section of cyclists has been instituted on the tramway in Atjeh for the purpose of patrolling the line. The men ride special cycles, or rather trollies, which carry four men each, and run on the tram lines. The machines can be driven forwards or

backwards; the handlebars are fixed, so that the men can, if necessary, use their rifles from the saddle. A telephone apparatus is carried which can easily be connected with the telephones lines which run by the railway.

(i.) *The Cadre Schools.*

There are two cadre schools, one at Tjimahi and one at Magelang.

(j.) *The Maréchaussée.*

A corps of military constabulary (distinct from the *Gewapende Politie*, or armed civil police) which is affiliated to the infantry, but being in reality a separate force, is treated separately with other miscellaneous forces in Section 19, p 117.

7. CAVALRY.*

The cavalry consists of one regiment of 6 field and 1 depôt squadrons; and the squadron of Life-Guard Cavalry, each with a section of 3 Madsen machine guns, and a troop of Cavalry Orderlies. The headquarters are at Bandoeng. The arm is stationed as follows:—

1st Field squadron at Batavia (I. Mil. Dist.).
2nd Field squadron at Soerakarta and Djokjakarta (II. Mil. Dist.).
3rd Field squadron at Malang (III. Mil. Dist.).
4th Field squadron at Tjimahi (IV. Mil. Dist.).
5th Field squadron
6th Field squadron } at Salatiga (II. Mil. Dist.).
Depôt squadron

The pigeon-post service is stationed at Bandoeng.

Squadron Life-Guard Cavalry at Soerakarta and Djokjakarta (II. Mil. Dist.).

Troop of Cavalry Orderlies at Willem I. (II. Mil. Dist.) for Bandoeng.

Remount-depôt, Tjipadalarang (IV. Mil. Dist.).

8. ARTILLERY.

The artillery is composed of:—

(*a.*) The staff of the arm.
(*b.*) Batteries and companies.
(*c.*) The magazine and workshop service.

(a.) *The Staff of the Arm.*

To this belong the 3rd Division of the War Office and headquarters, the district artillery commands, the inspector of small arms (a major), and the president of the experimental committee.

The district artillery commands comprise one in each military district of Java, one in Sumatra (west coast), and one in Atjeh. Each is under a lieutenant-colonel or major, who has a lieutenant as staff officer.

* For "Establishment and Composition of Units," *see* page 122.

(b.) *Batteries and Companies.*

There are 4 field and 3 mountain batteries, and 10 companies of fortress artillery.

The following are the 7 field and mountain batteries in Java and their stations :—

Ist Brigade Field Artillery (1st and 2nd Field Batteries) at Batavia.

IInd Brigade Field Artillery (3rd and 4th Field Batteries) at Tjimahi.

Ist Brigade Mountain Artillery (1st and 2nd Mountain Batteries) at Banjoe-Biroe.

3rd Mountain Battery at Salatiga.

Section of Field Artillery at Malang.

Depôt of Mounted Artillery at Tjimahi.

The following are the 10 companies of fortress artillery and their stations :—

7th Company at Tjilatjap (IV. Mil. Dist.).

† 9th Company at Batavia (I. Mil. Dist.).

12th Company at Batoedjadjar (Sumatra).

† 13th Company at Batavia (I. Mil. Dist.).

16th Company at Soerabaja (III. Mil. Dist.) (2 mobile batteries, each of 3 guns).

17th Company at Bandoeng for Salatiga (IV. Mil. Dist.) (2 mobile batteries, each of 3 guns). (Automobile batteries.)

19th Company at Bandoeng (Headquarters), and Soemedang.

† 20th Company at Batavia (I. Mil. Dist.).

22nd Company at Sabang (Sumatra).

† 23rd Company at Batavia (I. Mil. Dist.).

The equipment for two sections of mountain artillery on the West Coast of Sumatra and one section in Celebes is kept by the garrison companies in those places.

(c.) *The Magazine and Workshop Service.*

This comprises the following establishments :—

(1.) The artillery construction workshops at Soerabaja.
(2.) The ordnance workshops, &c., at Soerabaja and Bandoeng.
(3.) The armourers' school at Meester Cornelis.
(4.) The powder factory at Ngawi.
(5.) The pyrotechnic workshops at Bandoeng.

The artillery matériel is kept in artillery stores, and is under the control of the artillery garrison commandants, who have under them a staff of artillery storekeepers and conductors.

† These 4 companies are formed into 1 battalion, to which is attached a mobile battery of 2 guns.

The artillery garrison commandants, the director of the artillery construction workshops, the inspector of small-arms and the director of the ordnance workshops, together with the inspector of gunpowder factories, administer, in the name of the head of the War Department, the several establishments under their charge.

9. Engineers.*

The corps of engineers is commanded by a major-general. The remainder of the staff at headquarters consists of one lieutenant-colonel, two captains and three lieutenants. Headquarters are at Bandoeng.

A number of officers are scattered about the possessions, and control the district and local engineer services.

The engineer troops consist of four companies and a depôt company, stationed at Tjimahi; one company is a railway and telegraph company. There are also four detachments: the 1st in Java, Riouw, Palembang, Djambi and Western Borneo; the 2nd in Java; 3rd in Java, South and East Borneo, Celebes, Menado and Timor; 4th in Java, West Coast of Sumatra and Tapanoeli, Atjeh, East Coast of Sumatra, Amboina and Ternate.

The corps of engineer workmen is distributed among the various garrisons as required.

Civilian engineers may, on passing a prescribed examination, be appointed 2nd lieutenants of engineers, and do duty with the local engineer services.

In peace time the engineers' duty is the care and construction of fortifications and buildings; in time of war they act as pioneers, and as sappers and miners.

10. Service of Military Administration.

This service is composed of intendants, acting intendants, quartermasters and storekeepers. It includes the administrative service attached to the corps and garrisons, the clothing and equipment stores, the district commissariat services, and also a small corps of tailors and shoemakers. This latter corps was instituted in 1903, and consists of trained non-commissioned officers charged with the superintendence of the regimental tailors' and shoemakers' shops.

During the manœuvres of 1916 the failure of the intendance was a noticeable feature. It was suggested that a special transport corps should be organized, so as to avoid having to rely on coolies.

11. Medical Department.

The chief of this department, a major-general, is also chief of the civilian medical service, and, as such, is responsible for vaccination.

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* For "Establishment and Composition of Units," *see* page 122.

He has under his direction the military, medical and sanitary services, a large apothecaries' department, and the military veterinary service.

The number of doctors available for civil as well as military service was, in 1915 as follows :—

	Private.	Government.	Military.	Native.
Java and Madoera	87	48	19	113
Other possessions	61	2	45	72

Hospitals are divided into six classes, with accommodation ranging from 650 to 50 beds.

In 1911 three motor cars were bought for the use of medical officers.

12. Topographical Service.

The topographical service has several detachments in Java and the outer islands, and a surveying school at Magelang.

13. Train.

The train was formed as a separate corps in 1904, and is under the officer commanding artillery. It consists of the staff and two companies. Of these, the staff is at Bandoeng, the 1st company is stationed at Meester Cornelis, the 2nd company at Semarang. The officers detailed to the train are a major (temporary), two captains and two lieutenants, all of whom are borne on the strength of their own corps; its total strength is 11 officers, 60 European non-commissioned officers and men, and 279 natives.

Five motor lorries of German army type were bought in 1911 for conveyance of material in Java. Such vehicles would, of course, be useless anywhere else in the Dutch possessions owing to the absence of roads, and it is only in Java that wheeled transport can be used to any extent, coolies being indispensable elsewhere.

14. Corps of Civilian Officials.

This consists of 103 civilian bookkeepers, clerks, photographers, lithographers, &c., employed in the War Department.

15. Corps of Military Clerks.

This corps consist of 538 non-commissioned officers and privates, who are distributed among the several arms and departments. In case military clerks are not available in sufficient number, provision is made for the employment, in three classes, of civilians to supply the deficiency.

16. Corps of Staff Musicians

This consists of the 31 members of Governor-General's band.

17. Military School.

This school is at Meester Cornelis, near Batavia. It is maintained for the education of soldiers for appointment to the rank of officer in the infantry or in the service of military administration.

The school is under the direction of a captain, who is assisted by two infantry officers and two civilians as instructors. At the end of 1915, 72 cadets were under instruction.

18. Prison and Provost Department.

The principal military prison was built at Tjimahi. In addition to this institution the department includes all the various provost prisons in the different districts of the Netherlands East Indian possessions.

19. Maréchaussées, Schutterij and Irregular Native Corps.

The corps of maréchaussées (military gendarmerie) was originally formed in 1890, for the temporary purpose of guarding the works in the protected area in Atjeh. The corps was regularly established and increased in 1897, and has been constantly employed in the operations since that year. Such good service did it perform that in 1899 it was further increased (actual strength in 1916, 1,660).

The officers, senior non-commissioned officers, and half of the serjeants are Europeans, the remainder of the serjeants and all the corporals and privates are natives.

The officers draw the same pay as infantry officers. The non-commissioned ranks are paid at a slightly higher rate than the corresponding ranks in the infantry.

The corps is divided into "brigades," *i.e.*, sections of about 20 of all ranks and distributed as required. In Java there are two divisions:—

West Java, 3 detachments—Tjibasoesa, Madjalengka and Poerwakarta.

East Java, 2 detachments—Lawang and Lamongan.

The total strength in Java is about 500. Two companies hitherto stationed at Bali and Lombok were moved to Malang in Java in January, 1914, and are presumably included now in the above described 2 divisions.

The Schutterij is a sort of militia (in the English or American sense). It is proposed (1918) to abolish the various *Schutterijen* in consequence of the introduction of universal military service; but for the present the following particulars stand: They have in time of peace nothing to do with the army except that they are inspected by the local district commanders and are equipped by the State. In time of war the Governor-General can, however, mobilize them. All Europeans* and

* All Malays, Moors, Buginese, and Bengalese are supposed to belong to the Schutterij from their 16th to 40th year; but this category is very small, so that the Schutterij is practically a European militia.

their descendants (non-military) are obliged to belong to the "Schutterij" from their 18th to their 45th year, with the exception of certain Government officials and those living more than 5 miles from a "Schutterij" centre. The men have, unless indigent, to provide their own uniforms ; arms and accoutrements are issued from Government stores ; the majority are armed with the Beamont rifle. The appointment and dismissal of officers lies in the hands of the Governor-General.

The military training of the *Schutterij* begins on the 1st of April and lasts till the end of September, and once a week during that period there is either a parade or target practice. During the remainder of the year the men are liable to be called out to act as fire piquets and for other similar duties.

The following list gives the Schutterij centres in 1918 :—

Batavia, Semarang, Soerabaja, Djokjakarta, Soerakarta, Padang-Pandjang, Makasser, Menado, Amboina, Saparoea, Ternate. Except at Padang and Makasser, the Schutterijen of the outlying possessions are chiefly composed of the "native burghers" or Eurasians. The total strength is about 3,000.

In 1914 a *Volunteer Force* was raised for the defence of Batavia ; its object is only to perform actual service when threatened by an invasion, and there is no intention of organizing it permanently. No details as to strength are available. Other volunteer corps exist in Sumatra, at Buitenzorg, Soekaboemi, Bandoeng and Poerwakarta in Java, and at Balikpapan and Tarakan in Borneo. No details as to strength.

In time of war the following corps are available, which in peace time are under the department of the interior :—

(i.) *The Dragoons of the Body-Guard.*—A force of European soldiers placed at the disposal of the Sultans of Soerakarta and Djokjakarta. It numbers 104 officers and men, and 80 horses.

(ii.) *The Legions of Mangkoe Negoro.*—These are the native troops of the Soesoehoenan of Soerakarta, and consists of staff and a battalion of infantry numbering about 700 of all ranks.

(iii.) *Barisan Infantry of Madoera.*—This is a force of native infantry officered by natives, to which are attached a certain number of regular non-commissioned officers who act as instructors. It is under the orders of the Resident of Madoera and numbers 3 European instructors, 36 native officers, and 1,415 men of all ranks.

The value of these auxiliary corps is a point on which opinion in the Netherlands East Indian army is very much divided. The Barisans of Madoera were called out for service in Lombok (1894), and a Dutch officer, writing of the campaign, can only damn them with faint praise by saying that they were extremely willing and very useful in camp.

(iv.) *Corps of armed police.*—This force consists of a Central Depôt and Cadre School at Soekaboemi in Java, a sub-depôt at Batavia, and 22 divisions, of which three are stationed in Java, the rest in the outer possessions. The divisions comprise a number of "brigades," each of a strength of about 20 men. They are recruited chiefly from among the Christian natives (*i.e.*, Amboinese and Menadoese). In Bali and Lombok, a division of 500 police under the command of a captain has (February, 1914) taken over the military control of these islands.

The rates of annual pay of the corps referred to in (iv.) and (v.) are as follows, varying according to the districts in which they are quartered :—

	£ £
Serjeant	18 to 40
Corporal	16 „ 30
Private	10 „ 25

20. Colonial Reserve and Recruit Detachment in Holland.

The Colonial Reserve was instituted in 1890, is composed of men who are temporarily invalided home from the East Indies, and serves as a depôt to the East Indian army (stationed at Nijmwegen).

It consists of a staff and four companies, of which one is a company for convalescents. To this company are relegated men who, on their return, are unfit for any military duty; as soon as they are fit for service they are passed to one of the duty ("*valide*") companies.* These companies are liable to be sent on duty to either the East or West Indies.

The corps is officered by 1 colonel, 8 captains, 8 lieutenants, and 3 medical officers, who all belong to the East Indian army, but are not included in the strength thereof.

Recruit Detachment.—At Harderwijk, in Holland, where there are usually about 1,200 recruits.

21. Volunteer Automobile Corps.

In Java and Madoera, strength in 1916, 66.

22. Experimental Flying Detachment (*Proefvliegafdeeling*). H.Q., Bandoeng.

A commission of three officers has been sent to the U.S.A. to purchase aeroplanes, &c. 12 aeroplanes and seaplanes have been bought, and are now in Java. It was proposed to buy 22 reconnaissance and 8 fighting machines in 1918. There is a naval repair shed for seaplanes at Soerabaja.

* The medical boards appear to be unscrupulous in returning men as fit for duty in the tropics, who, in other countries, would be relegated to the Landstorm for ill-health.

23. Aeronautical Section.

A subsidy of £83 a year is paid to the Netherlands Aeronautical Association, whose sphere of action includes the Dutch East Indies.

Establishment and Composition of Units.

(a.) *Infantry.*

(i.) Field Battalions :—

Staff.—1 lieutenant-colonel (or major).
1 lieutenant (adjutant).
2 serjeants-major.
2 clerks.
3 musicians.
2 privates.

Two of the 21 field battalions may, if serving in two different districts, have a staff of nearly double the above strength.

Whenever a field battalion takes the field a depôt company is formed, the strength of which is determined by the Governor-General.

Strength of a company :—

——	Europeans.	Natives.	Total.
Captain	1	...	1
Lieutenants	3	...	3
Serjeant-major	1	...	1
Quartermaster-serjeant	1	...	1
Serjeants	8	0 or 4	8 or 12
Corporals	4 or 8	4	8 or 12
Drummers and buglers	3	...	3
Privates	68	64	132
	90 or 94	68 or 72	152

In each company a number of private soldiers, not exceeding 10, may be graded as 1st class privates, and receive an increased rate of pay. (*See* Appendix IV.)

Each company is divided into four sections, each section into two "brigades," one European and the other native, consisting respectively of 1 serjeant, 1 corporal, 17 privates and of 1 European serjeant, 1 European corporal or 1 Amboinese serjeant, 1 Amboinese corporal, and 16 native privates. This organization is used in war against natives and for internal economy. For war against Europeans, the sections are to be divided into four groups.

(ii.) Depôt Battalions :—

The staff is the same as for field battalions, less musicians.

The permanent cadre of the depôt companies is given below. The number of privates beyond that given is variable :—

	European Companies.	Amboinese or Native Companies.	
	European.	European.	Amboinese or other Natives.
Captain	1	1	...
Lieutenants	4	4	...
Serjeant-major	1	1	...
Quartermaster-serjeant	1	1	or 1
Serjeants	10	10	12
Corporals	15	...	10
Drummers and buglers	3	...	3
Privates	20	...	20

Each of the four depôt battalions has a cadre school for the training of privates as non-commissioned officers. Each school has two captains and six lieutenants, more or less, as instructors, one such instructor being allowed for every 25 men under instruction.

(iii.) Garrison Infantry —

As the number of companies per battalion, as well as the establishment of staffs of battalions, is very variable, the establishments will not be given.

(iv.) Supply Cadres :—

These are composed and stationed as follows :—

	Batavia.	Semarang.	Soerabaja.	Padang.	Kota Radja.
Captains	1	1	1	...	...
Lieutenants	3	4	3	1	2
Adjutant subalterns...	1	1	1	1	...
Corporals, master-workmen	2	...	...	...	...
Serjeants-major	1	1	1	1	2
European serjeants and quartermasters ...	5	5	5	5	3
European corporals	6	4	4	4	2
European privates	0	6	6	6	4
Native serjeants	5	4	4	4	1
Native corporals	6	5	5	5	2
Native drummers and trumpeters ...	3	3	3	...	1
Native privates	10	9	9	9	2

(v.) Machine-gun Companies :—

In 1912 five Machine-gun Companies were formed ; one of the five will not exist as such in time of peace, but the three sections of the 5th Company will be divided up amongst three other companies.

The establishment of each company is laid down as follows :—

Rank.	Peace.	War.
Captain	1	1
Lieutenants	3	3
Serjeant-major	1	1
European or Native quartermaster-serjeant ...	1	1
Serjeants (European)	3	3
Serjeants (Native)	3	
Corporals (European)	3	
Corporals (Native)	5	
Buglers (Native)	3	3
Privates (European)	12	9
Privates (Native)	21	43
Shoeing-smith (European or Native)	1	1
Saddler (European or Native)	1	1
	58	77

Total strength, Europeans : Peace, 23 or 26 ; war, 21 or 24.
Total strength, Natives : Peace, 32 or 35 ; war, 53 or 56.
In peace each company has 18 draught horses ; in war, 60.

(b.) *Cavalry.*

Field squadrons are about 160, the depot squadron 194 strong.

(c.) *Artillery.*

The establishment and equipment of units of artillery is given in the tables on pp. 126 to 130.

(d.) *Engineers.*

Engineer companies consist of four officers, 60 Europeans, and 74 natives.

NAVAL FORCES.

Unlike the army, which is purely colonial, the fleet in East Indian waters is partly colonial and partly national, and as such, its expenses are shared between the colony and the mother country.

Composition.—The naval forces are composed of—

(a.) *The Dutch Squadron in the East Indies, i.e.*, vessels of the Netherlands Fleet, detached to the Archipelago at the expense of the Colonial Government.

(b.) *The East Indian Navy*, consisting of—

(i) **The Royal Navy, i.e.*, vessels constructed at the expense of the Colonial Government and permanently stationed in colonial waters.

(ii) **The Coast-guard*, whose principal functions are the suppression of slavery, transport duties, customs and pilot service. This service has an absolutely civil organization, and is partly under the administration of the Department of the Interior.

The strength of the navy in East Indian waters naturally varies from year to year. In June, 1919, it consisted of—

(*a.*) 1. Battleships—

"De Ruijter" (1901)
"Koningin Regentes" (1900).
"Hertog Hendrik" (1900).

} 5,002 tons {

2—9·4-in. guns.
4—5·9-in. guns.
16 knots.

"Marten Harpertsz Tromp," 5,210 tons, armament as above.

The last was on her way out to relieve one of the first three.

(*a.*) 2. Destroyers :—

"Bulhond," "Fret," "Hermelijn," "Jakhals," "Lynx," "Panter," "Vos," and "Wolf" (1910–1913), 5,011 tons, 4—13-pr. guns and 2—17·7-in. torpedo tubes. 30 knots.

(*b.*) 3. Torpedo-boats :—

"Cerberus," "Draak," "Hydra," "Krokodil," "Minotaurus," "Python," "Scylla," "Sphynx," and "Zeeslang" (1888–1906), 77–133 tons. 24–27 knots.

(*b.*) 4. Submarine :—

K 1 (1913), 320 tons. 16 knots (surface); 11 knots (submerged).

(*b.*) 5. Gun-boats :—

"Koetei," "Mataram" (1896–1900), 500–800 tons.

(*b.*) 6—

"Borneo," "Lombok," "Soembawa," "van Doorn," "van Gogh" (1891–1901).

(*b.*) 7. Minelayers :—

"Assalan," "Siboga" and "Serdang."

(*c.*) 8. Coast-guard vessels :—

29 steamers (1878–1915), and a large number of small vessels.

* These terms are used as being the nearest translation for the words "Militairemarine" and "Gouvernementsmarine" respectively.

Organization and administration.—A flag officer of the Netherlands Navy, nominated by the Crown, commands the naval forces and also acts as Minister of Marine.

The ships of the Indian Navy are manned by officers and men of the Netherlands navy, together with a proportion of native sailors and stokers. All appointments are in the hands of the Home Government.

In the ships of the Coast-guard the two senior officers are trained at the Amsterdam Naval School, but the majority of the crew consists of natives. In the Coast-guard all appointments and promotions rest with the Governor-General.

The Marine Department is divided into the following branches :—

(1.) The Coast-guard, as regards *personnel* and *matériel*.
(2.) Buoyage.
(3.) Pilot service.
(4.) Lighthouse service.
(5.) Port establishments.
(6.) Naval establishment at Soerabaja.
(7.) Hydrographic branch.
(8.) Magnetic and meteorological branch.

ESTABLISHMENT OF A FIELD BATTERY

	Officers.			Euro-				
	Captain.	Lieutenants.	Total.	Serjeant-major.	Quartermaster-serjeant.	Serjeants.	Corporals.	Trumpeters.
Peace	1	4	5	1	1	8	8	2
War:—								
1ST LINE.								
6 guns	1	3	4	...	...	6	6	2
2ND LINE.								
6 wagons	...	1	1	...	...	1	2	...
3RD LINE.								
48 portable ammunition boxes	...	...	...	...	1	...	...	...
4TH LINE								
2 spare carriages	...	...	...	1	...	1	...	...
1 forge	...	...	...	...	...	...	...	...
1 store wagon	...	...	...	...	...	...	...	...
Transport of stores	...	...	...	...	...	...	...	...
Transport of kits	...	...	...	...	...	...	...	...
Spare	...	...	...	...	...	...	...	...
Total	1	4	5	1	1	8	8	2

MEN.

Officers	5
Europeans	97
Natives	154
Total	256

A FIELD BATTERY.

peans.			Natives.					Horses.					
Gunners.	Artificers.	Total.	Serjeants.	Corporals.	Drivers.	Gunners.	Total.	Officers'.	Riding.	Draught.	Pack.	Spare.	Total.
74	3	97	2	4	48	19	73	5	15	...	60	...	80
175								80					
42	...	56	...	...	18	12	30	4	8	36	...	...	48
24	...	27	...	...	18	24	42	1	3	36	...	...	40
...	...	1	...	3	...	26	29	...	1	...	24	...	25
8	...	10	1	...	6	4	11	...	2	12	...	...	14
...	1	1	...	...	6	1	7	...	...	6	...	...	6
...	3	2	...	...	6	4	10	...	...	6	...	...	6
...	...	...	1	...	...	3	4	...	...	...	3	...	3
...	...	...	...	1	...	8	9	...	...	...	8	...	8
...	...	...	...	...	...	12	12	...	...	...	...	12	12
74	3	97	2	4	54	94	154	5	14	96	35	12	162

HORSES.

Officers'	...	...	...	5
Troop ...	...	...	...	157
Total	...	...		162

	Officers.			Euro-				
	Captain.	Lieutenants.	Total.	Adjutant non-commissioned officer.	Serjeant-major.	Quartermaster-serjeant.	Serjeants.	Corporals.
Peace...	1	2	3	1	1	1	8	8
War:—								
1ST LINE.								
6 guns	1	1	2	1	1	...	6	6
6 howitzers	...	1	1	...	...	...	3	3
Ammunition — Gun, 24 boxes ...	...	...	...	...	...	...	...	...
Ammunition — Howitzer, 12 boxes ...	...	...	...	...	..	...	...	...
Ammunition — Light balls, 6 boxes ...	...	...	...	...	...	...	...	...
2nd LINE.								
2 spare carriages	...	...	...	...	...	1	1	...
Spare wheels	...	...	...	...	...	...	...	...
Ammunition — Gun, 48 boxes ...	...	...	...	...	..	...	1	...
Ammunition — Howitzer, 24 boxes ...	...	...	...	...	...	..		
Transport of stores	...	...	..	...	...	...	...	...
Transport of kits	...	...	...	..	...	...	...	...
Transport of forge	...	...	...	...	...	...	...	...
Transport of smiths' stores ...	...	...	...	...	...	...	...	...
Spare	...	...	...	...	...	...	...	...
Total	1	2	3	1	1	1	11	9

A mountain battery quartered either wholly or partly in Atjeh may have,

EUROPEANS.
3 serjeants.
3 corporals.
6 gunners

12

On a peace footing a mountain battery must be in a condition to turn

* A gun is either drawn by 1 mule, or carried in

MOUNTAIN BATTERY.

peans.			Natives.							Horses.						
Trumpeters.	Gunners.	Total.	Serjeants.	Corporals.	Drivers.	Gunners.	Artillery.	Coolies.	Total.	Officers'.	Riding.	Draught	Pack.	Spare.	Total.	Mules.
2	43	64	2	3	30	10	3	...	48	3	11		35		49	...
116												49				
2	30	46	...	...	12	6	...	...	18	2	10	...	...	...	12	18*
...	6	12	...	...	3	6	...	...	9	1	...	...	3	...	4	...
...	...	...	...	...	...	...	...	...	..	...	...	...	12	...	12	...
...	...	...	..	...	11	10	...	...	21	...	...	...	6	...	6	...
...	...	...	...	...	...	...	...	12	12	...	...	...	3	...	3	...
...	3	5	...	1	4	...	...	...	5	...	1	...	...	...	1	4
...	...	...	...	...	..	...	..	...	...	...	...	...	...	...	...	2
...	...	1	1	1	...	41	...	...	43	...	...	...	24	...	24	...
										...	...	...	12	...	12	...
...	...	...	...	...	...	4	..	...	4	...	...	...	4	...	4	...
...	...	...	...	...	...	5	...	...	5	...	...	...	5	...	5	...
...	...	...	...	...	...	1	...	...	1	...	...	...	1	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
...	...	...	1	1	...	2	...	...	4	...	...	...	...	9	9	6
2	39	64	2	3	30	75	...	12	122	3	11	...	71	9	94	30

in addition to the above, 1 lieutenant, 12 troop horses, and—

	NATIVES.
	10 gunners.
	8 drivers.
Total	18

out at once against a native enemy, with 4 guns and 4 howitzers.
3 loads (gun-carriage and wheels) by 3 mules.

ESTABLISHMENT OF COMPANIES OF GARRISON ARTILLERY.

—	Men.			—
	Officers.	Europeans.	Natives.	
7 companies in Java, each ...	4	65	34	
Total of 7 companies	28	455	238	
3 companies in outlying islands, together.	12	195	102	With 69 animals for mountain artillery sections.
Total	40	750	440	

MOBILIZATION.

The following extracts from the *Indische Staatsblad*, No. 169, 1901, indicate part of the action and powers of the Dutch military authorities on mobilization :—

"On the order to mobilize, all units will be at once put on a war footing, and, in cases where they do not exist in peace, depôts will be formed as quickly as possible for all units which require them under the war organization.

"The reserve will be used for this purpose, and also to form reserve units, organized similarly to the field troops. They will be employed according to the orders of the G.O.C.

"The reserve consists of all officers and men fit for service still available after the mobilization of units and staffs, and of those set free by the breaking up of certain establishments which exist only in peace.

"On the order to mobilize, the G.O.C., or the heads of sections of the War Department in his name, will conclude all necessary purchase and hire contracts. He is also empowered to occupy all lands and waterways required for military purposes, or for inundation.

"He can also, through the chief justice, make use of convicts for any work which they can do, or he can incorporate them in the field troops."

One paragraph regulates the calling up of retired and pensioned officers who may still be of use, for employment at the depôts or elsewhere.

All civil authorities must assist by carrying out any orders of the G.O.C. Paragraphs 16 to 18 lay down, with regard to officers and men whose time has expired, or will shortly do so, that they must continue to serve till the end of the war if communication with Holland ceases to be possible.

The chief difficulty under which the Governor-General labours as regards the defence of his territory is the scattered condition of his forces. (*See* Appendix III.)

The defence of the whole of the possessions is neither necessary nor possible, and it seems probable that defence against a foreign enemy would be restricted to Java.

Even were transport available it is very doubtful if many troops could be withdrawn from the other possessions for the defence of that island. The only place where any large number of troops is concentrated outside Java is in the northern portion of Sumatra. Here (Atjeh and West Coast) there are in all some 6,000 troops.

In addition to the military forces detailed in Appendices II. and III., the Schutterij have to be reckoned with (*see* p. 117). Of these there are over 800 in or about Batavia and some 500 about Soerabaja. It is not known what their value as a fighting force may be; although they have to carry out a certain amount of military training, it is not probable, owing to the different conditions of existence in the two countries, that they would render as good an account of themselves as did their brothers in South Africa. The value of the newly conscripted European troops is also uncertain.

It might appear reasonable to expect that the Dutch forces would be largely augmented by Javanese volunteers, for in 1875 no less than 5,000 offered themselves for service against the Atchinese. The "home rule" movement of recent years, however, which is connected with the *Sarikat Islam* societies, and undoubtedly shows the existence of a certain amount of disaffection towards Dutch rule, will probably militate against any such voluntary aid being offered by the natives. At Dutch suggestion the native princes of Djokjakarta and Soerakarta would doubtless provide troops (of very doubtful military value). But the new measure of conscription now (1918) to be put into operation, will, if, and when it is extended to the natives, give the Dutch as much native material as they need without any volunteers. The only question is how far they would be able to arm, equip and officer the conscripts.

Speaking of the difficulties that would be encountered by an invader, and of the natural aptitude for defence of Java, it may be observed that owing to the marshy nature of the coast, the small extent of the few sandy beaches, and the extreme facility with which opposition could be offered to the entrance and ascent of rivers—where landing, as a rule, would alone be practicable—the disembarkation of a hostile force would be a matter of no little difficulty. A landing once effected, an enemy's further movements would be crippled by the absence of good communications, which,

when the great coast roads were left, would render it impossible for him to move on a broad front, and would necessitate the employment of many columns, all of which, owing to the close nature of the country, would be more or less isolated and liable to be cut up in detail. The whole island is so intersected by rivers, brooks and ditches as almost to preclude the operations of cavalry. The presence of numerous villages lying in the midst of gardens and clumps of bamboo, separated from each other by extensive rice-fields which can be inundated at pleasure, and admirably connected by a network of paths and roads, as well as large, thick, and often impenetrable woods, and the hilly nature of the island, give to Java a series of natural obstacles and positions which must very materially aid her should she ever be called upon to assume the defensive.

In spite of the profession by the Dutch Government that it is a cardinal principle of their Indian administration that concessions of land should never be granted to foreigners at positions of strategical importance where foreign ownership might become dangerous to the State in case of war, concessions were recently (1917) granted to Germans on the island of Krakatau, in the Straits of Sunda, and in the island of Bali, on the Bali Strait, facing Banjoewangi.

CHAPTER IX.

Arms, Ammunition, Equipment, Clothing, Barracks, Rations, Transport, Health of Troops.

Infantry.

Rifle.—The '95 Männlicher ·256 magazine rifle, with bayonet (which is always carried fixed, in the Russian fashion). This rifle replaced the Beaumont single-loader of ·433 bore, which is still used by the Schutterij.

Machine-gun.—Schwarzlose.

A few Gardner guns, converted to take the ·256 cartridge, are also in use at fortified ports.

Hand-grenade.—Round, cast-iron; weight, 1,015 kg. Bullets, hollow. Charge, 42 grms "Seaweed" powder. Fuze has double safety device.

Sawing-knife (*Zaagmes*).—Carried by group leaders, *i.e.*, eight per company. Length, 1 foot 7½ inches; weight, 1 lb. 4 ozs.

Chopping-knife.—(*Kapmes*). Carried by other non-commissioned officers, buglers, and all men. Length, 1 foot 7½ inches; weight, 1 lb. 9 ozs. Very similar to the "*machete*" in common use in South America and in parts of Africa.

Both these weapons must be useful in a country which is, in many places, covered with thick tropical jungle.

Sword for officers, &c.—Length (including sheath) 0·37 to 1·05 m.

Pistols.—Adjutants, non-commissioned officers, and serjeants-major carry "Parabellum" automatic pistols, 1911 model.

Ammunition.—In field battalions 205 rounds per rifle are carried, distributed as follows:—

On the man	60
Regimental coolies	45
1st ammunition column	45
2nd ammunition column	55
Total	205

In one of the recent colonial expeditions 100 rounds were carried on the man and 247 in reserve.

Clothing.—Grey-green serge blouse, with red piping and shoulder cords, five rows of red braid across front, and brass buttons. Officers may wear white when not on duty. Grey-green trousers with red piping. White may be worn when not in full dress. The old blue uniforms are not yet altogether discarded.

A cape is always carried, as in Java it rains on ·220 days in the year.

Cork helmet of British type, covered with blue (or grey-green) cloth, gilt chain and ornaments and detachable spike. Blue (or grey-green) glengarry fatigue cap of ordinary Scotch shape.

Experiments are being made with a bamboo helmet covered with grey-green cloth, but it has not yet been issued, as the dye is not fast.

Equipment.—Black belt with two pouches in front and one behind, knapsack, water-bottles, haversack.

The brace is attached to the belt in front on each side, and is roven through a ring in the back pouch. No pack is carried by the man.

Tools.—The following tools are carried by the infantryman in a pouch on the belt :—Combined spade and pick-axe, wire-cutters, chain-saw, and file for sharpening tools.

Boots.—Native soldiers do not wear boots. Europeans wear half-boots and white spat-leggings of canvas. Cavalry wear yellow leather boots. Cloths are usually worn in place of socks.

Pioneer equipment of a company of infantry.—In addition to the chopping and sawing knives, which form part of the personal equipment, each company of infantry is provided with :—1 sledge hammer ; 1 case, complete with strap ; containing 50 3-inch nails and 5 spikes ; 1 large American hand-saw ; 1 case, complete with strap, containing saw-rest and file ; 1 short crow-bar ; 4 large American felling-axes, with leather cases ; 10 pick-axes ; 52 shovels ; 2 whetstones.

Weight carried by the Infantry Soldier on Service.

	Europeans.		Natives.	
	lbs	oz.	lbs.	oz.
Clothing, haversack, water-bottle, &c.	11	7	7	10
Waist-belt and equipment carried on it	3	1	2	12
Knapsack filled	19	11	13	13
Cartridge pouch, ball bag and ammunition ...	6	2	6	2
Rifle and bayonet (carried fixed)	10	9	10	9
Total	50	14	40	14

The knapsack contains :—1 jacket, 1 pair serge trousers, 1 neck cloth, 1 shirt,* 1 pair drawers,* 1 pair shoes,* 1 pair white trousers, 1 fatigue cap, 1 hair comb, cloth and shoe brushes, 1 grease box, blanket, mess tin, and great-coat (the last three carried outside).

Cavalry.

Carbine.—Männlicher ·256 magazine carbine.

Pistol.—Senior non-commissioned officers and the trumpeters carry a "Parabellum" automatic pistol, model 1911.

Sword.—Carried by all ranks. Cut-and-thrust pattern. Length, 3 feet 2½ inches. Weight, with scabbard, 2 lbs. 7 ozs.

Chopping-knives.—Sixteen per squadron.

Sawing-knives.—Eight per squadron.

* These articles are not carried by natives.

Ammunition.—Eighty rounds per carbine, viz., 10 in each wallet, 10 in right breeches pocket, 50 in second ammunition column.

Machine guns.—The cavalry have now been supplied with Madsen automatic rifles. Each squadron has a section of 3 guns, with an European serjeant-major as fire-unit commander, 2 native troopers as gun-bearers, 2 ammunit ion horses and men to lead them. The men and horses are not included in the establishment of the squadron. Each horse carries 2,000 rounds (weight 200–240 lbs.), and each gun-bearer carries 200 rounds. The rifle weighs 15 lb., fires 200 rounds per minute, and is loaded with clips, each containing 25 rounds. When in action the muzzle rests on a two-legged support. The rifle possesses good ballistic qualities but has no cooling apparatus, requiring constant change of barrel; the presence of a third gun, however, makes it possible to let each one cool off in turn while the two others carry on the fire. The rifle is said to be rather unsteady in action, and for that reason its use in the Russian cavalry was discontinued.

Tools.—Troopers carry four horseshoes and nails with them on the saddle in the field. Other tools carried in the squadron are—a small pick, a sort of grub hoe, and small hand grasscutters used by native troops in cutting grass for the horses of the squadron. One man carries dynamite and fuze, &c., for demolitions.

Clothing.—As for infantry, but with white metal buttons. Breeches and knee boots. Officers and warrant officers wear a badge of cross-swords behind the rank marks on the collar of the "attila" (braided tunic) and on the epaulettes of the white undress tunic, which are of black lacquered leather.

Weight carried by horse.—With a 114 lb. man, average weight 208 lbs. Valises are not carried.

Artillery.

Arms.—Dismounted men carry the "Parabellum" pistol. Men on gun and limber are armed with the infantry chopping-knife. Mounted men carry the cavalry sword in addition to the automatic pistol.

Clothing and equipment.—As for cavalry, but with brass buttons. Only mounted men wear breeches and boots, the remainder having infantry leg-gear.

Guns.—Each field battery has 6 guns.

The particulars of the latest field gun (Krupp, 1911) are as follows:—

Calibre	75 mm. (2·95-in.)
Type	Q.F. (recoiling on carriage).
Length of barrel	30 cals. (225 mm.)
Rifling	28 (with increasing twist).
Field of fire (elevation)	+ 16° 8′ − 10°.
„ (traverse on either side)...	3·5°.
Thickness of shield (carriage) ...	·45 mm.

There is a panoramic telescope with sloped rear sight rod and rocking-bar sights.

Ammunition (limber)	27 rounds H.E. and shrapnel.
„ (caisson)	60 rounds H.E. and shrapnel.
Weight of gun complete	1567 to 1580·5 kg.
„ caisson	1573 to 1586·5 kg.

The breech is semi-automatic, with closing mechanism with side crank, but the gun is not fed automatically. Fuze setter: 20 shrapnel fuzes set per minute.

Mountain batteries have a peculiar armament of six 75 mm. guns and six 75 mm. howitzers each. The guns and howitzers fire the same projectiles, which are the same as those used for the field artillery. A few 12 cm. (4·7) mortars are still in use in these batteries instead of howitzers, but are obsolescent, and are rapidly being replaced.

The particulars of the latest mountain gun (Ehrhardt, 1903) are as follows:—

Calibre	75 mm.
M.V.	984 f.s.
Weight of shell (shrapnel)	11 lbs. 10 ozs.
„ gun	242 lbs.
Length of gun	49·6 ins.
Shield, thickness	·14 ins.
„ weight	121 lbs.
Total weight of carriage and shield ...	704 lbs.
Weights on mules, including saddles—	
Gun mule	175 lbs.
Top carriage mule	242 lbs.
Lower carriage mule	242 lbs. (including spare parts and box of ammunition).
Wheel mule	220 lbs.

Wedge breech action.
Folding trail.
Spade.
Fixed ammunition.

In 1910 a new mountain gun, invented by Captain A. T. Goodzen, of the General Staff, was being experimented with, and in 1911 a Krupp mountain gun was also tried, with combined shell and mechanical time fuzes.

The older type field gun is a gun of similar character to the 75 mm. mountain gun described above, but is mounted on wheels, and is 5 ft. 10 ins. in length and weighs 518 lbs.

No particulars are available regarding the 75 mm. howitzer, except that it is 1 ft. 7 ins. in length and weighs 110 lbs.

Ammunition carried in a Field Battery.

	Per gun.					Per battery.				
	1st Line.	2nd Line.	3rd Line.	4th Line.	Total.	1st Line	2nd Line.	3rd Line.	4th Line.	Total.
Ring shell	12	24	24	...	60	72	144	144	24	384
Shrapnel shell	15	30	16	...	61	90	180	96	30	396
Case shot	3	4	8	..	15	18	24	48	6	96
	30	58	48	..	136	180	348	288	60	876

Ammunition carried by a Mountain Battery.

	Per gun.			Per battery.		
	1st Line.	2nd Line.	Total	1st Line.	2nd Line.	Total.
Ring shell	12	24	36	72	144	216
Shrapnel shell	12	24	36	72	144	216
Case shot	4	8	12	24	48	72
	28	56	84	168	336	504

Tools carried by a Field Battery.

	1st Line.	2nd Line.	3rd Line.	4th Line.	Total.
Shovels	6	6	...	8	20
Pick-axes	3	3	...	4	10
Native picks (*patjols*)	...	3	...	...	3
Hand-axes	6	...	...	8	14
	15	12	...	20	47

Tools carried by a Mountain Battery.

	1st Line.	2nd Line.	Total.
Shovels	9	...	9
Pick-axes	9	...	9

Engineers.

Arms.—Short sword and "Parabellum" pistol.

Clothing and personal equipment.—As for artillery.

Technical equipment.—(*See* page opposite.)

This equipment is calculated on the normal strength of a company. If the strength be greater, then more picks, shovels, and axes are carried, preserving the proportion of two shovels to one pick, and the same number of axes as picks.

The reserve equipment of a company is packed in 32 boxes and 36 bundles, of which none exceed a weight of 44 lbs. It is evenly distributed among the four sections, so that in case of necessity each section is independent.

The reserve equipment of a section consists of eight boxes and nine packages, with the following contents :—

Box No. 1, demolition stores.
„ 2, small tools.
„ 3, nails.
Boxes Nos. 4, 5, 6, 7, 8, each with a box of screws and 33 lbs. of powder.
2 packages, each of 8 shovels and 13 feet of rope.
1 package with 5 pick-axes and 13 feet of rope.
1 „ „ 8 axes and 13 feet of rope.
2 packages with 44 lbs. of small cordage and 13 feet of rope.
1 package with 1 small grindstone.
1 „ „ iron trough for grindstone.
1 „ „ 44 lbs. of sandbags.

9

TOOLS CARRIED IN THE FIELD BY A SECTION OF ENGINEERS.

Rank.	Pick-axes.	Axes.	Shovels.	Native picks (blades).	Short lever.	Adze.	Sledge hammer	Auger.	Tracing tape, 25 yards.	Measuring tape.	Skirret, complete.	Rule.	Crows.	Crooked chisel.	Hand saw, large.	Saw-file.	Saw-wrest.	Nails.	Spikes.	Lantern.
Senior serjeant...	...	...	...	...	...	...	...	1	1	1	1	...	...	...	...	...	...	...	...	...
Junior serjeant	...	...	...	...	...	...	...	1	1	...	...	1	2	1	...	...	...	...	...	...
Senior corporal	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	50	5	...
Second corporal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...	...	...
Junior corporal	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Drummer or bugler	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
1 European sapper	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5 sappers	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5 sappers	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3 sappers	...	...	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3 or 2 native sappers	...	...	...	3 or 2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	5	5	10	3 or 2	1	1	1	2	2	1	1	1	2	1	1	1	1	50	5	1

Transport.

Transport for field operations.—The nature of country in which Dutch East-Indian troops may be called upon to serve in the field is so varied that, with every expedition, fresh calculations have to be made as to the amount and nature of transport required.

So much of the country being either jungle or rice field, in the latter of which communication is restricted to the narrow "bunds" running between the fields, arrangements generally have to be made for transport by pack animals and coolies. To meet this general condition all equipment is so arranged that it is divided into loads of 44 lbs. each, suited for coolie transport, *e.g.*, the reserve equipment of a company of engineers, p. 138.

A peculiarity of the Dutch service is, that a very large amount of their coolie transport in the field consists of native convicts, and, whether as a relief to the monotony of their existence, or in the hope of being released at the termination of the operations,* these men work well and behave in the most gallant manner, even to carrying the scaling ladders at assaults. Some 3,000 of them were employed at Lombok in 1894, and were much preferred to the free coolies.

On service the transport is divided into that necessary for the supply of the depôts and the regimental transport.

The depôts being, when possible, placed on roads or tracks, the use of country carts and pack animals is often possible, but the regimental transport depends mainly on coolie transport.

During the expedition to Lombok in 1894, where the fighting took place in a country with a certain number of fair roads, but otherwise covered with rice fields, for a force of three battalions of infantry, half a squadron, four field and four mountain guns and a proportion of engineers, the transport provided at the commencement of the campaign was—

General Train.—For filling up depôts and the transport of sick, 742 convicts with 27 headmen, together with pack and draught animals.

Staff and Regimental Train, as follows :—

Staff.—8 convicts.

Infantry battalion.—4 headmen and 108 convicts, distributed as follows :—1 headman and 27 convicts for each of the 4 companies (16 for reserve ammunition, 8 for cooking pots, and 3 for pioneer tools).

Half squadron of cavalry.—1 headman and 24 convicts (4 for cooking pots and 20 grass-cutters).

Artillery.—2 headmen and 44 convicts (12 for cooking pots and 32 grass-cutters).

Engineers.—2 headmen and 54 convicts (6 for cooking pots, 34 for reserve equipment and 14 for telegraph troop).

Topographical Service.—4 convicts.

* A large number of convicts were released as a reward for their gallant conduct during the Lombok expedition of 1894.

Military Administration, Staff.—4 convicts for conveyance of archives.

Military Administration, Regimental.—2 convicts for each unit for the conveyance of archives.

Medical Department.—1 field hospital with 2 headmen and 48 convicts. Six field ambulances with 18 headmen and 456 convicts.

Each field ambulance comprises 1 medicine and 1 surgical chest, each carried by 4 convicts, 15 dhoolies, and 2 improvised field stretchers, with 4 convicts for each.

Total of train, 64 headmen and 1,718 convicts.

Remounts.

A permanent Purchasing Commission has been appointed, in which are included the cavalry commandant at Salatiga, the commander of the mounted field artillery at Banjoebiroe, and one of the veterinary surgeons from the garrisons of Salatiga or Banjoebiroe. The above-named commission buys at Semarang only, so that at Batavia and Soerabaja no more army horses are to be bought at sales.

For the cavalry and artillery only very good horses may be purchased, but for the remount depôt the number of horses to be purchased is unlimited until further orders, and the restrictions as to quality are less severe.

Besides purchases at public sales, horses for the army and remount depôt may be bought privately. For this purpose the permanent commission shall, at a time to be determined and to be duly published in the daily papers, sit for several days at Soerabaja and Batavia, select from the horses offered those suitable for the army, and purchase them on approval.

Furthermore, the Director of the Remount Depôt at Tjipadalarang is authorized to purchase horses at all times for his establishment.

Australian, native, and Chinese horses, and Chinese mules, are used. Sandalwood Isl and ponies are much used by the officers (about 14 hands, price about £100 each). In 1916, 320 horses were provided by the remount depôt for the army, of which 188 went to the cavalry, 127 to the infantry, and five to the train; 197 horses were bought in Australia, mostly 4 and 8 year olds; 17 Australian horses were also bought in Java. For the train and M.G. companies 259 horses were bought in Java, and 70 (40 native and 30 Chinese) horses were taken over from the artillery and cavalry. No purchases of mules is mentioned. For the transport train in Atjeh 39 trek-oxen and 12 elephants were purchased.

The amount of rations issued in quarters, on the march of these amounts are always issued on the march and in the are

	In quarters.	
	Europeans, Africans, and Amboinese.	Natives.
	oz.	oz.
Rice, white	15·8	22·9
Preserved or salt meat	1·7	1·4
Fresh beef or buffalo meat	8·8	7·0
Fresh pork or bacon	1·7	...
Dried fish	...	1·4
Bread or biscuit...	7	...
Beans	2·8	...
Butter	...	...
Coffee	1	1
Tea	·176	...
Onions	...	...
Salt	·7	·7
Pepper	...	...
Fresh Spanish pepper	...	...
Preserved curry spices, "*sambal*"	...	...
Curry-powder	...	...
Fresh herbs for curry	...	...
Spices	...	...
Soap	...	...
Vinegar	...	...
Fresh cocoa-nut oil	...	...
Gin	...	...
Petroleum	...	...
Red wine ... ... (bottles)	...	...
Sardines ... ... (boxes)	...	...
Firewood ... ... (cubic feet)	...	...
Duck's eggs, salted ... ... (number)	...	...
Vegetables ... ... (rations)	...	...
Dried vegetables ... ... (oz.)	...	...
Relish for breakfast ... ... (rations)	...	...
Ingredients for the preparation of "*sajoer*" or curry. (rations)	...	...

(*a*) Half this ration may be exchanged for 21·1 oz. potatoes and ration (*brasketan*), consisting of cooked rice and spice (*sambal*), may 21·1 oz., potatoes and 5·2 oz. of vegetables will be drawn. (*d*) Three butter, or 1·76 oz. cheese, or 2·6 oz bacon, or a fresh duck or hen's

and in the field, is as follows. It is not implied that the whole field, but that these are the amounts issued when supplies available :—

When on march.		Field.		
N.C.Os., rank and file.		Officers.	N.C.Os., rank and file.	
Europeans, Africans, and Amboinese.	Natives.		Europeans, Africans, and Amboinese.	Natives.
oz.	oz.	oz.	oz.	oz.
17·6 (*a*)	22·9 (*b*)	14 (*c*)	14 (*c*)	22·9 (*b*)
14	9	...	...	...
...	...	14	12·34	8·8
...	...	3·52	2·82	...
...	...	...	...	2·46
7	...	7	7	...
...	...	3·52	2·82	...
...	...	2·1	1	...
1	1	1·76	1	1
·176	·176	·529	·282	·282
1·41	...	1	·88	·52
·88	·88	1·76	·88	·88
·052	...	·07	·052	·03
·176	211	...	...	...
...	...	·1	·07	·1
...	...	·07	·035	·035
·176	176	...	...	...
·035	·035	·07	·035	035
...	...	1·76	1	·7
pints.	pints.	pints.	pints.	pints.
·0176	·009	·088	·0176	·0176
·009	·009	·052	·009	·009
·176	...	...	·176	...
·0176	·0176	176	·025	0·176
...	...	½	...	...
...	...	1/10	1/14	1/14
·1059	·0882	·1764	·1059	·0882
...	...	...	...	½
...	...	1 (*d*)	1 (*d*)	1 (*d*)
...	...	·35	·14	·1
1 (*e*)	1 (*f*)	...	...	...
1	1	...	...	...

5·2 oz. vegetables. (*b*) In lieu of 2·5 oz. of rice, 21·1 oz. of iron be drawn for breakfast. (*c*) Twice a week in lieu of 8·8 oz. rice, times a week, 3·5 oz. of beans, dried vegetables, &c. (*e*) 1·05 oz. egg. (*f*) A fresh or salted duck's or hen's egg, or 2·46 oz. dried fish.

Fodder for horses presents some difficulty in the East Indies, where there is difficulty in obtaining good hay. The grasslands of Tjimahi produce a certain amount. Pressed hay and oilcake are imported.

Barracks.

The most important barracks and officers' quarters are at Bandoeng, the headquarters of the army.

In all permanent quarters barracks have been constructed by the engineers. In some places they are old and uncomfortable, but the newer barracks are good, and, according to European standards, luxurious The following is a brief description of the barracks as at present constructed for infantry. Those for other arms are similar, with the necessary additions of stables, gun-sheds, and other requirements :—

Each battalion has separate barracks, divided into the officers quarters, headquarters building, and four company barracks.

Senior officers have detached, enclosed bungalows, those of the juniors are semi-detached.

The headquarters buildings and company barracks usually enclose a space which serves as a parade ground.

In the headquarters building are included the orderly room, quartermaster's and other offices, cells, guard-room, tailor's and shoemaker's shops, and the quarters of non-commissioned officers of the battalion staff.

The company quarters are divided into two or four sleeping-rooms, for a half-company or section respectively. These are in turn sub-divided into four or more rooms by wooden partitions, 8 feet high or thereabouts. These rooms are inhabited by the corporals and privates, other non-commissioned officers each have separate rooms adjoining the company rooms. The men have iron bedsteads similar to those in use in Germany, but all standing on the floor; arm-racks stand between the rows of beds. Each company has its own day-room, where the men have their meals, and which they can use during the daytime. These are well furnished and lighted at Government expense. Food and drink (excepting spirits) are dispensed from a bar adjoining this room.

Concubinage is recognized and even encouraged by the military authorities, and separate cubicles are provided for such men as have concubines.* There is a separate kitchen where the concubines can cook for themselves and their spouses.

Separate married quarters are built for the married native soldiers.

The bath-rooms, which are plentiful, and privies, are in a separate building.

The other buildings are the fencing and gymnastic shed, the magazine, and the stable.

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* This practice is extended to at least one of the military prisons, where occasional cohabitation is permitted.

All the buildings are of one storey. As a rule the barracks are surrounded by a growing edge and a barbed-wire fence. In certain cases these fences are flanked by two blockhouses standing at opposite corners of the rectangle enclosing the barracks.

Barracks are classed in three categories; temporary, semi-permanent, and permanent.

In the first the floors are of rammed clay, walls of wattled bamboo, and roofs of mat and leaf, sometimes of tiles.

Semi-permanent barracks have cement floors, walls and roof-timbers of shaped timber, and iron or tiled roofs.

Permanent barracks are similar to the semi-permanent except that they have stone walls.

Married non-commissioned officers have entirely separate quarters to each family; unmarried non-commissioned officers are separated by movable screens. The non-commissioned officers have usually a separate canteen or "societeit."

Health of troops.

The following extracts from the hospital returns for 1916 will give an idea of the most prevalent diseases, and of the extent to which the troops suffer therefrom.

—	Malaria.	Cholera.	Beri-beri.	Syphilis and gonorrhœa.	Dysentery.	Meningitis.
Cases treated	5,482	6	128	2,807	544	9
Died	9	1	4	...	4	7

The strength of the forces was at the time in question about 35,220.

Of the European troops 82·74 per cent., of the Amboinese 89·33 per cent., and of the other native troops 92·94 per cent., were fit to take the field in 1916.

Crime.—In 1916, of the total of 7,398 European non-commissioned officers and men, 1,055 were punished for drunkenness. There were 1,389 cases of punishment.

Social Institutions.—The social and religious welfare of the troops is looked after by the (Protestant) Christelijk Militaire Bond voor Oost-en-West-Indie, with institutions at Weltevreden, Meester Cornelis, Buitenzorg, and Tjimahi; the Salvation Army (Leger des Heils) at Weltevreden, Bandoeng, Soerakarta, Malang and Soerabaja; the (R.C.) Katholiek-Sociaale Bond at Weltevreden, &c.

CHAPTER X.—ROUTES.

Routes in Java.

Compiled from various guide books and maps.

Route 1.

Batavia to Banjoewangi. (Great Post Road.)

Stage.	Place.	Distance in Miles. Intermediate.	Distance in Miles. Total.	Remarks.
1	Weltevreden	1½	1½	Follow steam-tram to Meester Cornelis, then take southern road and east side of railway to about a mile from it.
	Meester Cornelis ...	3¾	5¼	
	Tjidjantoeng	10	15¼	
2	Tjibinong	10	25¼	A second-class road branches east to Tjibaroesa. Road commences to rise steadily during Stage 2.
	Nanggewer	4	29¼	
	Buitenzorg	7½	36¾	
3	Wangoen...	6	42¾	Here a branch road cuts across the mountains south-east *viâ* Patjet, and rejoins the main road at Tjiandjoer. This reduces the distance to 28 miles, but the gradients are steep, and the road rises 3,000 feet in about 8 miles.
	Gombong...	9¾	52½	Cross railway near Gombong station. The pass south of this is about 1,640 feet above sea level.
4	Tjitoeroeg Station ...	5	57½	Just south of town, road re-crosses railway.
		6	63½	Re-cross railway to south.
		5½	69	Re-cross railway to north. Here the road and railway together turn eastward. All of Stage 4 is downhill.

5	Soekaboemi	11	80	Road rises again to 2,000 feet, and just after Soekaboemi turns north-east, and leaves the railway, which it does not rejoin till Tjiajoer.
6	Tjiandjoer	16	96	Road passes over a southern spur of Mount Mangalawangi. From this point the road keeps near the railway, frequently crossing and re-crossing it till 12 miles east of Bandoeng, where it bears north-east away from the railway.
7	Radjmandala	16	112	Road rising steadily to 2,303 feet at Bandoeng.
8	Tjimahi	16	128	
2	Bandoeng	8	136	
10 and 11	Soemedang	24	160	12 miles west of here the road crosses watershed, and a steady down-grade is maintained to Cheribon.
12	Tjong Geang	12	172	North-easterly direction, turn east here.
13	Kadipaten	12	184	Just after crossing the Tji Manoek, near Kadipaten, a road branches south to Malangbong and Garoet
14 and 15	Cheribon	28	212	Here the road turns along the coast, to which it keeps very closely till it reaches Soerabaja, only leaving it (to cut off the Japara promontory) between Semarang and Joana.
16 and 17 (?)	Tajoeng	24	236	Steam tram along road, which is generally very level, but crosses streams and rivers by bridges every few miles. Steam-tram continues the whole way to Soerabaja, except Stages 30–36.
18 (?)	Tegal	20	256	
19	Pemalang	18	274	
20 and 21	Pekalongan	25	299	
22	Soeba.	16	315	More undulating. Spurs run nearly down to the sea.
23	Bodiri river	20	335	Pass at Kendal 4 miles from river.
24	Semarang	16	351	A road turns south to Soerakarta. Road now hears E.N.E.
25	Demak	16	367	Across alluvial plain to Demak river.
26	Koedoes	17	384	
27	Pati	15	392	Cross low watershed and follow left bank of Joana river as far as the town of that name. From here onward the road is practically devoid of long ascents or descents.
28	Joana	8	407	Cross the Joana.
29	Rembang	17	424	From here to Sidajoe there is no tram, but a concession has been granted.
30 to 33	Toeban	64	488	No place of any importance passed; road keeps close to sea-level.
34 to 36	Sidajoe	38	525	

Batavia to Banjoewangi. (Great Post Road)—*continued.*

Stage.	Place.	Distance in Miles. Intermediate.	Distance in Miles. Total.	Remarks.
37	Grisee (or Gresik) ...	14	540	Ferry over Solo river at *Boenga (6 miles).*
38	Soerabaja	10	550	Road is bounded throughout its length by water ditches and fishponds.
39	Sidoardjo	15	565	Turn south on right bank of *Kalimas (after crossing railway),* Cross Kalimas near its junction with Wonokromo canal (4 miles). After this crossing the road is joined by the railway, *which it follows.*
40 and 41	Bangil	16	581	Turn east at Gempal (8 miles).
42	Pasoeroean	9	590	
43	Probolinggo	24	614	Railway turns south and leaves road. Steam-tram continues to Paiton (24 miles).
44 and 45	Besoeki	35	649	
46 and 47	Sitoebondo	94	673	A road turns south to Poeger, on coast south of Djember.
48 and 49	Soemberwaroe	24	697	Road leaves coast to avoid a high hill which stands on the north-east corner of Panaroekan.
50 and 51	Banjoewangi	40	737	The last two stages pass through, for Java, very sparsely inhabited country.

Route 2.

Batavia to Anjer.

(Great Post Road.)

	Batavia railway station	...	...	The ground in the immediate vicinity of Batavia is much intersected, and it is almost impossible for troops to move except on the roads.
1	Tanggerang	14¾	14¾	West for 2 miles, then turn south-west as far as the railway, along the north side of which the road then runs.
2	Bitoeng	7¼	22	South-westerly direction.
	Blaradja	7¼	29¼	West, then north-west,
3	Tjikande	8¾	38	South-west, then north-west to Tjikandi, where the Tji Doerian is crossed (8¾ miles).
	Koppo	8	46	North-west, cross the Tji Oedjong at Koppo.
4	Serang	12	58	West by north. Pass Tjiroeas at 5 miles.
5	Tjilegon	12	70	N.N.W.
6	Anjer	18	88	West over a slight rise (the first departure from level ground since Batavia), then south-west along the coast.

From Anjer the road follows the coast-line for another 20 miles but leads to no place of importance.

Route 3.

Probolinggo to Pasirian.

Stage.	Place.	Distance in Miles.		Remarks.
		Intermediate.	Total.	
	Probolinggo	...	...	This road runs due south till Loemadjang, where it bears slightly westward. It follows the railway throughout its length.
1 and 2	Klakah	18	18	Cross watershed at 12 miles.
3	Loemadjang	10	28	
4	Pasirian	12	40	Pasirian is within 6 miles of the south coast, but landing is only possible for small boats.

Route 4.

Sitoebondo to Poeger.

	Sitoebondo	...	...	This road follows the railway for all its length except the last 16 miles. It passes over no great height.
1	Bondowoso	20	20	General direction south-west. Here a second-class road branches north-west to Besoeki, 16 miles through steep hills.
2	Djember	20	40	These three stages can easily be cut down into four or more.
3	Poeger	24	64	Only a boat-harbour at Poeger.

Route 5.

Meester Cornelis to Poerwakarta.

	Meester Cornelis station	...	...	
1	Bekasi	15½	15½	Eastward along south of railway; crosses it after 3 miles, and describes curve to north; recrosses railway, and then follows south side of it to Bekasi.
3	Tjikarang	11¾	27¼	Along south of railway and close to it. Here a second-class road turns south-west to Buitenzorg (48 miles).
3	Tjitaroem railway crossing.	10¼	37½	Follows railway, crossing it frequently. After crossing river turns south-east still along railway.
	Krawang	4	41½	
4	Tjikampek	16	57½	Along right bank of Tjitaroem for 8 miles then bears more to the east.
5	Poerwakarta	10	67½	Road bearing west of south, rises steadily throughout this march; follows railway both the last two days.

Route 6.

Pasoeroean to Malang.

1	Pasoeroean	...	...	Leaves town along steam-tram to south, bears south-west, where tram turns west at Warondowo station. Lawang is on the watershed, and about 1,200 feet above sea-level. After this the road falls gently to Malang.
	Lawang station ...	20	20	
2	Malang	13	33	

ROUTE 7.

Soerabaja to Tjilatjap.

(The Southern Road.)

Stage.	Place.	Distanee in Miles.		Remarks.
		Inter-mediate.	Total.	
1	Soerabaja	...	...	The southern road as far as Kertosono and the branch road to Blitar follow the right bank of the Brantas closely, except as stated below.
2	Waroe	8	8	Turns west off Great Post Road, which has been followed to this point.
	Taman	4	12	
	Modjokerto	20	32	Passing through Krian. Here the road crosses railway and makes a detour to the south.
3	Peteroñgan	12	44	Re-cross railway and then follow north side of it at about 2 miles.
4	Kertosono	12	56	Branch road to south, *see* Route 8.
5	Nganjuk	16	72	Close along railway.
6	Tjaroeban	18	90	Rises steeply for 8 miles, then descends into basin of Solo river following railway.
7	Madioen	14	104	
8 & 9	Ngawi	24	128	West, then north, crossiug railway at 16 miles. Turn west and follow right bank of Solo river as far as Soerakarta.
10	Gendingan	16	144	
11	Sragen	16	160	

12	Soerakarta	17	177	Eight miles west of here the main road branches north-west to Salatiga and Semarang, *see* Route 9.
		8	185	Branch road to Semarang; main road turns S.S.W. along railway to
13 to 15	Djokjakarta	32	217	Djokjakarta.
16	Brosot	14	231	On the Progo river, and 4 miles from the sea. Steam-tram as far as Brosot.
17 & 18	Poerworedjo	28	259	Road follows coast for 16 miles and turns north about 12 miles from Poerworedjo.
19	Kostoardjo	6	265	Road turns west and follows the railway very closely to Tjilatjap.
20	Keboemen	16	281	
21	Gombong	13	294	
22	Branch to Banjoemas ...	16	310	Banjoemas 5 miles distant.
23	Adiredjo	16	326	On the Serajoe delta.
24	Tjilatjap	12	388	

Route 8.

Kertosono to Blitar.

	Kertosono	...	...	
1	Kediri	16	16	Between railway and Brantas river, S. by W.
2	Four miles north of Toeloenggagoeng,	16	32	Follows east side of railway. Turns south-east at this point.
3	Blitar	20	52	

Route 9.

Soerakarta to Semarang.

Stage.	Place.	Distance in Miles.		Remarks.
		Intermediate.	Total.	
	Soerakarta	...	...	*Almost* due west. At 8 miles main road branches south-west. During this stage the road rises from 300 to 1,200 feet.
1	Bojolali	17	17	
2	Salatiga	18	35	Turn north-west and then bear north. A further rise of 500 feet and a steep road.
3	Ambarawa	9	44	A main road branches south-west to Magelang, 22 miles through the mountains.
4	Semarang	20	64	Steady descent after 6 miles.

Route 10.

Djokjakarta to Magelang and back to Poerworedjo.

	Djokjakarta	...	...	The steam-tram runs along this road
1	Soeleman	12	12	Northerly direction,
2 and 3	Magelang...	28	40	Meets road referred to in Route 9, stage 3. Turn to south-west.
4	Salaman	10	50	
5	Poerworedjo	17	67	

ROUTE 11.

Olele viâ Kota Radja to Soelaimoem.

1	Olele Pier	...	...	To station, then south to prison, crossing swamp by causeway.
	Kota Radja Station ...	4	4	Turn to left through plantations.
	Lam Baro	6	10	Cross Lam Njong line near station. Road follows tramway up the valley of the Atjeh River as far as Indrapuri, direction S.S.E.
2	Indrapoeri	11	21	Here the road crosses to right bank of river, which it follows to Soelaimoem.
3	Soelaimoem	14	35	Main road ends and only a track follows the tramway through to Sigli on the north coast.

Route 12.

Padang to Fort de Kock and Pajakoembo.

Stage.	Place.	Distance in Miles.		Remarks.
		Intermediate.	Total.	
1 to 3	Padang	...	...	This road follows the railway closely through all its length except at the start. Starts from near the office of the resident and follows the shore for 5 miles till it crosses the railway
4	Kajoetanam	32	37	Here the road becomes very steep.
	Padang Pandjang ...	12	49	Road and railway branch south-east to Solok and Sawa Loento on the Ombilin coalfields.
5	Fort de Kock	13	62	The first part of the road is through steep hills. Near Fort de Kock the country opens out into rice fields and plantations.
6 and 7	Pajakoembo	25	87	The vicinity of the two last-named places is covered by a network of good roads; from the former a main road goes north, and from the latter another goes south to the coalfields.

Route 13.

Bengkoelen to Palembang.

	Bengkoelen	...	...	This is a good main road throughout.
1 and 2	Kepahiang	30	30	Road leaves town eastward and follows watercourse for 8 miles, then turns north-east and crosses main watershed at 25 miles; crosses the Moesi close to Kepahiang.
3 and 4	Talang Padang	27	57	Turns south-east and follows left bank of Moesi for 17 miles, then turns E.N.E.
5	Tebing Tinggi	17	74	Five miles east of Talang Padang rejoins the Moesi and follows its left bank to Tebing Tinggi.
6	Boengamas	22	96	Turns east by south and crosses about 15 southern tributaries of the Moesi.
7	Bahat	15	111	Main road branches south to Bandar, 25 miles.
8 and 8	Moera Enim	25	136	Follows the Lematang. Crosses from left to right bank at 6 miles.
10 to 14?	Palembang	70	206	At Moera Enim is a great oil concession with a conduit running to the refinery below Palembang, about 90 miles. From Moera Enim a main road branches south to Batoe Radja. The road turns north at Moera Enim and follows the right bank of the Lematang for 35 miles in a curve to the eastward. Here it joins the above-mentioned conduit and follows it nearly to Palembang. There are no places of any importance on the road.

APPENDIX I.

POPULATION STATISTICS.

THESE STATISTICS ARE THOSE PUBLISHED OF THE LAST CENSUS (1905).*

—	Europeans.	Chinese.	Arabs.	Other foreign Orientals.	Natives.	Total.
Java and Madoera	64,917	295,193	19,148	2,842	29,715,908	30,038,008
Other possessions	15,993	268,256	10,440	20,128	7,304.552	7,619.369
Total	80,910	563,449	29,558	22,370	37,020,460	37,717,377

* No census for Timor or for Dutch New Guinea.

The estimated population in 1912 was:—Europeans, 104,817; Chinese, Arabs, &c., 770,060; Natives, 46,585,736; total, 47,985,614. This includes estimates for Timor and New Guinea.

DISTRIBUTION OF THE EUROPEAN (ADULT MALE) POPULATION ACCORDING TO EMPLOYMENT (1905).

—	Civil Government employees.	Lawyers, doctors, &c.	Traders and their employees.	Industrial.	Agriculture.	Other employment.	School staffs.	Retired Officials.
Java and Madoera	6,596	633	2,340	1,986	4,585	1,322	364	2,676
Other possessions	1,881	238	681	1,078	697	574	70	495
Total	8,477	871	3,021	3,064	5,282	1,896	434	3,171

POPULATION OF SOME OF THE PRINCIPAL TOWNS IN 1905.

	Batavia.	Semarang.	Soerabaja.	Pekalongan.	Djokjakarta.	Soerakarta.	Padang.	Palembang.	Bandjermasin.
Europeans	8,777	5,126	8,063	430	1,477	1,572	1,789	372	455
Natives	99,320	76,413	124,473	36,816	72,641	109,524	83,337	50,703	12,684
Chinese	28,150	13,636	14,343	3,371	5,266	6,532	5,136	7,304	2,581
Arabs	2,058	698	2,482	1,061	97	337	210	2,420	910
Other foreign Orientals ...	246	787	337	41	86	413	368	186	78
Total	138,551	96,660	150,198	41,719	79,567	618,378	91,440	60,985	16,708

In the above tables Japanese and half-castes are classified as "Europeans."

APPENDIX II.

NETHERLANDS EAST INDIA ARMY.

(*a.*) STRENGTH BY ARMS AT END OF 1916.

—	Officers (including Sub-Lieuts.)	N.C.Os. and men.		Other Natives.	Total.	Horses.	Guns.	Machine guns.
		European	Amboinese.					
Staff of Governor General	2 (1 Naval Lieut.)	...	...	...	2	...	...	...
Departmen of War	8	...	...	...	8	...	...	...
General Staff—								
Headquarters (7th Section War Department).	12	...	...	...	12	...	...	...
General service	6	...	...	...	6	...	...	...
Experimental Flying Detachment ...	3	...	...	...	3	...	...	...
Provincial and Local Staff	34	...	...	...	34	...	...	...
Infantry—								
Headquarters and staff... ...	8	...	...	...	8	...	...	...
21 field battalions, 4 machine gun companies, and detachment cyclists.	306	2,840	5,842	8,218	17,206	94	...	45?
3 depôt battalions	39	447	321	1,492	2,299	...	...	...
Garrison infantry, &c.	247	1,065	1,742	6,193	9,247	...	...	...
On way to destination	15	105	116	483	719	...	...	...
Marechaussee	27	99	776	758	1,660	...	...	...
Cavalry—								
Headquarters and staff	2	...	...	...	2	...	...	...
Troops	36	562	...	468	1,066	914	...	18 (Madsen).
On way to destination	3	3	...	1	7	...	...	...

Artillery—								
Headquarters and staff...	8	...	...	...	8	...	...	...
Field and mountain batteries	43	666	...	1,051	1,760	893	72*	...
Garrison artillery	49	696	...	639	1,384	...	Unknown	...
Magazines and workshops	26	249	...	14	289	...	...	...
On way to destination	...	3	...	...	3	...	...	...
Engineers—								
Headquarters and staff...	44	183	...	...	227	...	...	...
Troops and military workpeople ...	19	317	...	380	716	...	...	...
Military Administration—								
Headquarters	13	2	...	...	15	...	...	...
Intendance, &c.	101	145	...	...	246	...	...	...
Military Writers' Corps	...	320	126	1	447	...	...	...
Medical and Hospital Service—								
Headquarters	8	6	...	...	14	...	...	...
Corps of officers of health	165	...	...	..	165	...	...	...
Corps of apothecary officers	16	...	...	...	16	...	...	...
Corps of apothecary assistants ...	...	31	...	...	31	...	...	...
Corps of veterinary officers	10	...	...	...	10	...	...	...
Hospital service...	...	525	569	609	1,703	...	...	...
On way to destination	...	5	3	4	12	...	...	...
Corps of staff musicians	...	30	...	...	30	...	...	...
Military school	3	16	...	4	23	...	...	...
Military prisons	1	28	...	...	29	...	...	...
Train	6	51	...	416	473	846	...	...
Topographic service—								
Headquarters	3	44	...	...	47	...	...	...
Brigades of topographic service ...	24	87	...	...	111	...	...	...
Instructional	...	1	...	...	1	...	...	...
Remount depôt	1	4	...	50	55	226	...	...
Farriery school	...	...	...	...	...	...	...	...
Total	1,310	8 535	9,495	20,781	40,121	2,973	72†	63 ?

* 24 howitzers.

† Field and mountain guns and howitzers; unknown number of fortress guns (12 mobile).

(*b.*) RECAPITULATION OF STRENGTH OF THE NETHERLANDS EAST INDIA ARMY.

ACCORDING TO ARMS, NATIONALITIES, &C., AT THE END OF 1916.

Arm.	Officers.	European N.C.Os. and men.	Total Europeans	Amboinese.	Other natives.	Total natives.	Total all nationalities.	Horses.	Guns.	Machine guns.
Infantry	642	4,556	5,198	8,797	17,144	25,941	31,139	94	...	45 ?
Cavalry	41	565	606	...	469	469	1,075	914	...	18
Artillery... ...	126	1,614	1,740	...	1,704	1,704	3,444	893	72 field & mountain, ? fortress.	...
Engineers ...	63	500	563	....	380	380	943	...	...	...
Other arms ...	418	1,300	1,718	698	1,084	1,782	3,500	1,072	...	...
Totals ...	1,310	8,535	9,845	9,495	20,781	30,276	40,121	2,973	72 + ?	63 ?

APPENDIX III.

ARMY DISTRIBUTION.

(*a.*) THE SUBJOINED TABLE GIVES THE ACTUAL STRENGTH ACCORDING TO COMMANDS ON 31ST DECEMBER, 1916.*

Military Commands.	Infantry (excluding those enumerated in Column III.).					Other Arms and Services (excluding those enumerated in Column III.).						Sick, Leave, and otherwise not available.						Total.						Grand Total: Officers, Non-commissioned Officers and Men.	Troop Horses and Mules.	Guns (Fortress guns in brackets).	Machine guns.
	Officers.	Sub-Lieutenants.	Non-commissioned Officers and Men.			Officers.	Sub-Lieutenants.	Non-commissioned Officers officiating as Officers.	Non-commissioned Officers and Men.			Officers.	Sub-Lieutenants.	Non-commissioned Officers and Men.			Officers.	Sub-Lieutenants.	Non-commissioned Officers officiating as Officers.	Non-commissioned Officers and Men.						
			Europeans.	Amboinese and other Natives.	Total.				Europeans.	Amboinese and other Natives.	Total, Non-commissioned Officers and Men.			Europeans.	Amboinese and other Natives.	Total, Non-commissioned Officers and Men.				Europeans.	Amboinese and other Natives.	Total, Non-commissioned Officers and Men.					
1st Military District of Java	69	18	745	3,421	4,166	109	9	...	708	704	1,412	23	5	370	631	1,001	201	32	...	1,823	4,756	6,579	6,812	559	12 (?)	15 (?)
2nd ,, ,, ,,	73	21	629	4,452	5,081	83	7	1	587	819	1,406	15	3	447	1,151	1,598	171	31	1	1,663	6,422	8,085	8,288	979	36 (?)	24 (?)
3rd ,, ,, ,,	33	15	432	1,345	1,777	66	5	...	321	374	695	8	1	158	977	1,135	107	21	...	911	2,669	3,580	3,708	273	12 (?)	24 (?)
4th ,, ,, ,,	53	18	541	2,328	2,869	170	15	...	946	1,075	2,021	28	4	678	1,412	2,090	251	37	...	2,165	4,815	6,980	7,268	923	12 (?)	
Totals of Java (including Billiton).	228	72	2,347	11,546	13,893	428	36	1	2,562	2,972	5,534	74	13	1,653	4,171	5,824	730	121	1	6,562	18,662	25,224	26,076	2,734	72 (?)	63 (?)
Atjeh and Dependencies ...	69	11	248	3,574	3,822	54	5	...	226	234	460	11	4	46	987	333	134	20	...	520	4,095	4,615	4,769	239	...	?
West coast of Sumatra ...	19	7	108	1,015	1,123	18	5	...	77	41	118	2	...	20	206	226	39	12	...	205	1,262	1,467	1,518	...	...	
Tapanoeli	5	1	10	193	203	3	...	...	4	9	13	...	...	...	12	12	8	1	...	14	214	228	237	...	...	
Palembang and Djambi ...	31	5	217	1,044	1,261	10	...	...	37	42	79	3	...	29	45	74	44	5	...	283	1,131	1,414	1,463	...	...	
Riouw	3	1	9	118	127	...	...	...	2	6	8	...	...	...	22	22	4	1	..	11	146	157	162	...	...	
Western Division of Borneo ...	18	4	99	724	823	5	...	...	20	13	33	1	...	9	27	36	24	4	...	128	764	892	920	...	...	
Southern and Eastern Division of Borneo.	18	5	109	715	824	11	1	...	38	27	65	1	...	11	48	59	30	6	...	158	790	948	984	...	...	(?)
Celebes and Menado — Celebes Government and Dependencies.	28	4	174	1,023	1,197	17	2	...	40	54	94	...	...	20	57	77	45	6	...	234	1,134	1,368	1,419	...	...	
Celebes and Menado — Menado Residency	6	...	13	189	202	3	...	...	4	11	15	...	...	...	...	...	9	...	...	17	200	217	226	...	...	
Timor and Dependencies ...	22	3	156	777	933	5	...	...	29	32	61	2	...	14	71	85	29	3	...	199	880	1,079	1,111	...	...	
Amboina and Ternate — Amboina Residency.	9	2	29	376	405	6	1	...	31	17	48	2	...	4	46	50	17	3	...	64	439	503	523	...	...	
Amboina and Ternate — Ternate Residency	4	...	11	190	201	1	...	...	2	7	9	...	1	...		...	5	1	...	13	197	210	216	...	...	
Total of the several commands of the dependencies, exclusive of Atjeh.	163	32	935	6,364	7,299	79	9	..	284	259	543	12	1	107	434	541	254	42	...	1,326	7,157	8,483	8,779	...	...	...
Total strength of Army with the exception of certain non-combatant corps† and officers and men travelling, &c.	460	115	3,530	21,414	25,014	561	50	1	3,072	3,465	6,537	27	18	1,806	4,892	6,698	1,118	183	1	8,408	29,914	38,322	39,624	2,973	72 (?)	63 (?)

* Based on the official report of 1917 (no particulars of guns or machine guns given therein).

† Under this heading come the following:—The corps of staff musicians, the staff of the military school, the staff of the military corps of cadets, and the staff of the military prisons.

(*b.*) SUMMARY OF DISTRIBUTION.

—	Officers.	Non-commissioned Officers and Men.		Total.	Horses.	Guns.	Machine guns.
		European.	Amboinese and other Natives.				
Java	852	6,562	18,662	26,076	2,734	72 field and mountain, ? fortress.	63 ?
Atjeh	154	520	4,095	4,769	239	? fortress ...	...
Sumatra, not including Atjeh ...	114	513	2,753	3,380	...	? fortress ...	...
Borneo	64	286	1,554	1,904	...	...	...
Celebes	60	251	1,334	1,645	...	...	...
Moluccas	26	77	636	739	...	..	...
Sunda Isles	32	199	880	1,111	...	...	...
Total	1,302	8,408	29,914	39,624	2,973	72 field and mountain, ? fortress.	63 ?

The remaining officers and men not included in the above scheme of distribution are either not attached to any definite station, are temporarily absent or non-effective, or are non-combatants.

APPENDIX IV.

OFFICERS.

Annual Rates of Pay.

	Infantry.	Cavalry.	Artillery.
	£	£	£
Lieutenant-General	2,000	...	...
Major-General	1,250	...	...
Colonel	1,000	...	...
Lieutenant-Colonel	700	...	750
Major	600	650	650
Captain	350	350	400
Lieutenant	200	225	225
2nd Lieutenant...	170	185	185

The pay of engineer officers is the same as that for the artillery, but the former are most of them in receipt of additional allowances for special duties.

NON-COMMISSIONED OFFICERS AND MEN.

Rates of Daily Pay.

Europeans and Amboinese.	Infantry.	Cavalry.	Artillery.
	s. d.	s. d.	s. d.
Warrant Officer	3 2	3 4	3 4
Serjeant-Major	2 $2\frac{1}{2}$	...	2 4
Q.M.S. and Serjeant	1 8	1 9	1 9
Corporal	1 0	1 1	1 1
Private, 1st Class	0 $7\frac{2}{5}$	0 9	0 $8\frac{1}{5}$
Private	0 $6\frac{2}{5}$	0 $8\frac{1}{5}$	0 $7\frac{2}{5}$
Natives.			
Serjeant	1 3	1 4	1 4
Corporal	0 10	0 11	0 11
Private, 1st Class	0 5	0 $6\frac{1}{5}$	0 $5\frac{4}{5}$
Private	0 $4\frac{1}{5}$	0 $5\frac{1}{5}$	0 5

After 6 years' service, serjeants, corporals and privates receive additional daily pay at the rate of $1d.$, $\frac{1}{5}d.$, and $\frac{2}{5}d.$ respectively.

APPENDIX V.

COINAGE, WEIGHTS AND MEASURES.

Native Geographical Terms.

Coinage.—The coins in circulation are as follows; they are the same as those in use in the Netherlands. The terms "florin" and "guilder" (Dutch, *gulden*) are interchangeable :—

	Sterling value. s.	d.
Gold:		
10-gulden piece...	16	$6\frac{1}{4}$
Ducat	9	$4\frac{1}{2}$
Silver:		
Rixdaler of $2\frac{1}{2}$ florins	4	2
Gulden	1	8
Half-gulden = 50 cents	0	10
Kwartje = 25 cents	0	5
Dubbeltje = 10 cents ... ... =	0	2
Copper:		
$2\frac{1}{2}$ cent ... ... =	0	$0\frac{1}{2}$
1 cent ... ... =	0	$0\frac{1}{5}$
$\frac{1}{2}$ cent ... ... =	0	$0\frac{1}{10}$

Since 1875 the coinage has been on a gold basis, and par of exchange is 12 florins per £; the currency has, however, remained entirely silver, aided by bank notes of 5 florins and upward.

Gold coins are very rarely seen.

Weights and measures.—In 1838 it was decided to introduce the metric system, but so many difficulties, in the way of passive resistance to innovation and otherwise, have supervened, that it is not completely introduced.

The following are the principal weights and measures other than those of the metric system, which are in common use :—

Long Measure.

1 paal=400 rods=1,507 metres=1,647 yards.
1 old Sumatra paal=1 geographical mile=1·15 statute miles.
1 Amsterdam ell=·68 metres=·74 yards.
1 vadem (fathom)=1·7 metres=1·86 yards.
English yard.
English mile.

Square Measure.

1 bahoe=7,096 square metres=8,414·8 square yards.
1 square paal=320 Bahu=2,694,016 square yards.

Weight.

1 kattie=·6176 kilogrammes=1·36 lbs.
1 pikol=100 katties=61·76 kilogrammes=136 lbs.

Native Geographical Terms.

The following translations of the more common affixes to native names used in this book may possibly prove of assistance :—

Soengei ... Batang ... Kali ... Tji	=river.
Poelo ... Noesa ...	=island.
Goenoeng ... Boekit ...	=mountain.
Tandjoeng Tandjong ... Oejoeng ...	=cape.
Rava ... Paja ...	=marsh.
Ledang ... Padang ...	=plain.
Loeboe(k)	=bay or bight of river.
Moe(a)ra	=river mouth.
Kota ... Koeta ...	=chief town.
Telok	=bay or gulf.

APPENDIX VI.

A List of the Principal Works Consulted.

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