

day, and by poets and romancers ever since. She has suffered vicariously for her father and brother. See especially her latest historian, Gregorovius (*Lucretia Borgia*, 1874), whose volumes contain a mass of most interesting information, especially relating to Lucretia's early years, but whose vindication of his heroine might have been much more decided. The English biography by Gilbert is well intended, but devoid of literary or historical value. (R. G.)

BORG SAN DONNINO, a walled town of Italy, in the province of Parma, and capital of a circondario, is situated on the Stirone, a sub-tributary of the Po, about 15 miles W. of Parma on the railway to Milan. Besides its cathedral, a building of the 13th century, in the Lombard style, adorned with rude sculptures, it possesses a castle and fort, a theological seminary, a college, a music school, and a remarkable institution for mendicants. The spinning of hemp and silk and the manufacture of glass are its principal industries. Borgo is identified with *Fidentia*, memorable in ancient history for the siege sustained by M. Lucullus, one of Sulla's generals, against the forces of Carbo. It is mentioned as a *municipium* by Pliny, but seems afterwards to have sunk to a mere village. In 304 it was the scene of the martyrdom of Saint Dominus, from whom it has derived the distinctive part of its modern name. During the Hohenstauffen dynasty it was an imperial possession, and in 1501 it became the seat of a bishop. Population, 10,855.

BORGOGNONE, AMBROGIO. See FOSSANO.

BORGU, or **BARBA**, a large district in the interior of Africa, bounded on the E. by the Niger, on the S. by Yoruba, on the W. by Dahomey, and on the N. by Gurma. It is about thirty days' journey in length and eleven in breadth. It has generally a level surface, though crossed by a considerable range of mountains. The soil is mostly fertile, and tolerably cultivated, producing in abundance corn, yams, plantains, and limes. The cattle are numerous and of excellent breed, and there is a copious supply of all the species of game that prevail in Africa. A considerable inland trade between Haussa and the coast passes through this territory. When Clapperton entered it from Eyeo, he was warned to be on his guard, as the people were the greatest robbers and plunderers in all Africa, but he found this bad report altogether unjust. The people were honest, cheerful, obliging, good-humoured, and communicative. The district of Borgu is divided into a number of states, of which the smaller, such as Boussa, Wawa, Kiama, and Lugu, are dependent on the Fellatah kingdom of Gondo, while Kiti is ruled by a powerful and independent chief, who is frequently spoken of as sultan of Borgu. Wawa and Kiama are important commercial cities. Boussa was the scene of the disastrous fate of Mungo Park in 1805.

BORING. The methods and apparatus of boring will be found noticed under the different industries in which it is employed. See ARTESIAN WELLS, BLASTING, COAL, GUNS, &c.

BORISSOGLIEBSK, a town of Russia, in the government of Tamboff, 11½ miles S.E. of that city, in 51° 22' N. lat. and 41° 4' E. long., on the left bank of the River Vorona. It was founded in 1646 to defend the southern frontiers from the incursions of the Crim Tatars, and in 1696 was surrounded by wooden fortifications by command of Peter I. The public buildings include four churches, a hospital, and two schools; the principal industries are the preparation of wool, the manufacture of cast-iron, soap-boiling, tallow-melting, and brick-making; and the trade, which is decidedly important, consists in grain, wool, cattle, and leather. There are two annual fairs, and markets twice a week. Population in 1867, 12,254.

BORKU, or **BORGU**, a country in the interior of Africa, situated between the 17th and 20th parallels of N. lat., and between 18° and 21° E. long., and forming part of the great Soudan region. It is bounded northwards by the Tibesti Mountains, and is in great measure occupied by lesser elevations belonging to the same system; to the south or rather south-west lies the Bodele basin, from which it is separated by a narrow stretch of higher ground. The climate is much better than that of the neighbouring countries to the south and east; but the eastern trade-winds blow persistently with great violence, being strongest from early morning till about three P.M. The light sand that covers a large part of the country is drifted by it into countless heaps, that change their shape and position from day to day. It is plain, from the fish-skeletons still strewn the ground, that a considerable portion of the south of Borku has at no very distant day been like Bodele and other districts under water. At present the irrigated and fertile portions consist mainly of a number of valleys separated from each other by low and irregular limestone rocks. Of these the most important are Jin, Nguro, Elleboë, and Kirdi in the south, and Bodo, Tiggi, and Jarda in the north. They furnish excellent dates, of about twelve different sorts. The northern valleys and Jin are inhabited by a settled population of about 5000 people, known as the Donosa or Dosa; the others are mainly visited by nomadic tribes. The Uelad Sliman, a powerful Arab tribe, claim the lordship of the land, but have to share their authority with another tribe known as Mgharba which immigrated from Barca about 1860. They do not inhabit the country of Borku, but give proof of their claim to possession by plundering the valleys every three or four years. In the end of 1851 Dr Barth and Dr Oberweg joined an army despatched by the sultan of Bornu for the conquest of the region east of Lake Chad; but the army was defeated and put to flight, and the travellers were disappointed in their expectation of reaching Borku. Dr Nachtigal spent some time in the country in the year 1871, and gives an account of his sojourn in the *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, 1873.

BORLASE, WILLIAM, a learned antiquary and naturalist, was born at Pendeen in Cornwall, of an ancient family, February 2, 1696. He was educated at Exeter College, Oxford, where he took his degree as master of arts. In 1720 he was ordained as priest; he was instituted in 1722 to the rectory of Ludgvan, and in 1732 was presented to the vicarage of St Just, his native parish. In the parish of Ludgvan are rich copper works, abounding with mineral and metallic fossils, of which he made a collection, and thus was led to study somewhat minutely the natural history of the county. In 1750 he was admitted a fellow of the Royal Society; and in 1753 he published, in folio, at Oxford, his *Antiquities of Cornwall*, a second edition of which was published at London, 1769, with the title of *Antiquities, Historical and Monumental, of the County of Cornwall; consisting of several Essays on the Ancient Inhabitants, Druid Superstition, Customs, and Remains of the most remote Antiquity in Britain and the British Isles, exemplified and proved by Monuments now extant in Cornwall and the Scilly Islands; with a Vocabulary of the Cornu-British Language*. His next publication was *Observations on the Ancient and Present State of the Islands of Scilly, and their importance to the trade of Great Britain*, Oxford, 1756, 4to, which had previously been printed in the *Phil. Trans.* In 1758 appeared his *Natural History of Cornwall*, Oxford, folio. He presented to the Ashmolean Museum a variety of fossils and antiquities, which he had described in his works, and for his benefactions received the thanks of the university, and the degree of LL.D. He died August 31, 1772. Borlase was well acquainted with

most of the leading literary men of the time, more particularly with Pope, with whom he kept up a long correspondence, and for whose grotto at Twickenham he furnished the greater proportion of the fossils and minerals. His letters to Pope, St Aubyn, and others, with answers, fill several volumes of MS. There are also MS. notes on Cornwall, and a complete unpublished treatise *Concerning the Creation and Deluge*. Some account of these MSS., with extracts from them, will be found in the *Quarterly Review*, October, 1875. Borlase's memoirs of his own life were published in Nichol's *Literary Anecdotes*, vol. v.

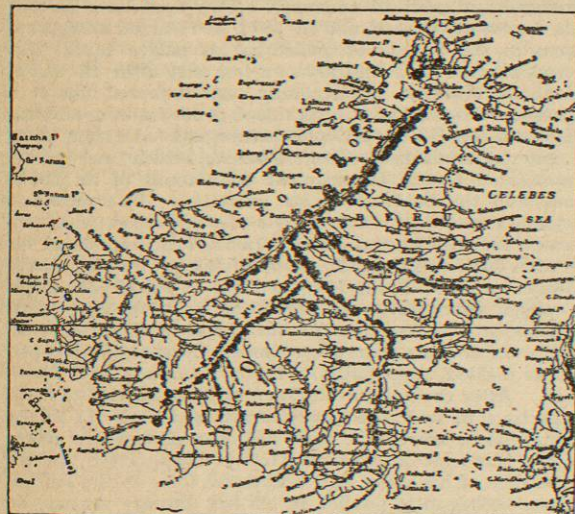
BORN, IGNATIUS, BARON VON, an eminent mineralogist and metallurgist, was born of a noble family, at Karlsburg in Transylvania, in 1742. He was educated in a Jesuit college at Vienna, and entered that order, which, however, after sixteen months, he quitted. After studying law at Prague he travelled into Germany, Holland, and France. On his return to Prague he engaged in the study of mineralogy. Austria produces various metals in considerable abundance, and the administration of the revenue arising to Government from this source is conducted by local boards, under the control of the chamber of mines at Vienna. This administration offers a field of some preference; and Von Born was received into the department of the mines and mint at Prague in 1770. About this time he met with an accident which nearly proved fatal, in the course of a journey through Transylvania. Having entered a mine at Felso-Bánya, whilst the air was charged with arsenical vapour, he was stupified for fifteen hours, and long afterwards suffered from a cough and general pain. Some time after this accident he was affected with violent colics, and in the latter part of his life was deprived of the use of both legs. These calamities, however, did not repress the activity of his mind. He had to give up his assessorship of the mining council, but continued to produce works on mineralogy which won him a European reputation. He met with much opposition in attempting to introduce amalgamation in Hungary, in place of smelting and cupellation, for extracting silver from the ores. His opponents endeavoured to prove his process inferior to that already in use; and, after it had been tried successfully, pronounced it to be merely the old Spanish process of amalgamation. The emperor, however, ordered that his method should be employed in mines belonging to Government, and that he should receive a third part of the savings arising from the improvement during the first ten years, and 4 per cent. of this third part for the next twenty years. In 1766 he was appointed by Maria Theresa to arrange the imperial museum at Vienna, where he was made councillor of state, and continued to reside until his death. Von Born attempted satire with no great success. The *Staats Perucke*, a tale published without his knowledge in 1772, and an attack on Father Hell, the Jesuit, and king's astronomer at Vienna, are two of his satirical works. Part of a satire, entitled *Monachologia*, in which the monks are described in the technical language of natural history, is also ascribed to him. Von Born was well acquainted with Latin and the principal modern languages of Europe, and with many branches of science not immediately connected with metallurgy and mineralogy. He took an active part in the political changes in Hungary. After the death of Joseph, the diet of the states of Hungary rescinded many innovations of that scheming ruler, and conferred the rights of denizen on several persons who had been favourable to the cause of the Hungarians, and, amongst others, on Von Born. At the time of his death in 1791, he was employed in writing a work entitled *Fasti Leopoldini*, probably relating to the prudent conduct of Leopold II., the successor of Joseph, towards the Hungarians.

BÖRNE, LUDWIG, German political writer and satirist, of Jewish family, was born 18th May 1786, at Frankfurt-on-the-Main, where his father, Jakob Baruch, carried on the business of a banker. He studied first at Berlin, where he became acquainted with Schleiermacher and the famous Henrietta Herz, and afterwards at Halle, intending to enter the medical profession. His inclinations for pure literature proved too powerful to allow him to carry out this design, and in 1806 he removed to Heidelberg in order to study financial and political economy. Two years later he took his degree at Giessen, and in 1811 he received an appointment in the bureau of police in his native town. The reconstitution of Frankfurt as a free city after the fall of Napoleon's power in Germany soon deprived him of a situation which was but little suited to his tastes or abilities. He then devoted himself to literature, and for a time edited a newspaper entitled *Staats-Ristretto*, which was quickly suppressed by the Government on account of its liberal tone and the boldness of its criticisms. The same fate attended his next venture, *Die Zeitschwingen*, which appeared for only four months. In 1817 he renounced his Jewish faith and took the name of Börne, by which he is always known. From 1818 to 1821 he edited *Die Wage*, a paper particularly distinguished by its lively political articles, and by its powerful but sarcastic theatrical criticisms. For some years after the suppression of his paper, Börne resided principally in Paris, Hamburg, and Frankfurt. After the July revolution (1830) he hurried to Paris, expecting to find the newly constituted state of society somewhat in accordance with his own philosophic views; but in this hope he was completely disappointed, and the bitterness of his anger lent additional force to the satirical letters he began to publish in his last literary venture, *La Balance*. While advocating his favourite scheme of a closer union between France and Germany, he assailed with unsparing sarcasm and polished wit the German dynasties, whom he looked upon as the great opponents of liberalism. He died at Paris in 1837. Börne's works are remarkable for brilliancy of style and for a thoroughly French vein of satire. His most elevated piece of criticism is the *Denkrede auf Jean Paul*, in which he shows himself fully able to appreciate the great German humourist. The *Menzel der Tranzosenfresser* may be taken as a specimen of his unrivalled powers of sarcasm. There have been several complete editions of his writings, the latest being that of 1862, 12 vols., Leipsic; his life has been written by Gutzkow, 1840.

BORNEO, one of the largest islands of the world, is situated about the middle of the East Indian Archipelago, and lies immediately under the equator, between 7° N. and 4° 20' S. lat., and between 109° and 118° E. long. It forms a kind of irregular hexagon, and its area is estimated by Engelhardt at 289,000 Eng. square miles (more than double the area of the United Kingdom). Its coast-line is much less broken than that of most of the neighbouring islands; and though there are some extensive bays, such as Maludu in the north and Sarawak in the west, none of them are so deep as greatly to interfere with the regularity of its contour. A large proportion of the seaboard is of alluvial formation; and in various districts the deposition of new land is very perceptibly going on. The whole of the ground, for example, to the west of the Kandang Mountains in the kingdom of Landak has been gained from the sea during the last four centuries, and it is evident that many smaller islands which fringed the coast in former times have been incorporated with the mainland. This process of extension goes on all the more rapidly, because the neighbouring sea is very shallow, except on the eastern side.

Of the interior of the island a considerable part has been only partially explored, so that the physical features can

hardly be given with sufficient precision and detail. The general character of the country is mountainous, though some of the ranges and few of the individual peaks attain to any great elevation. The centre of the island seems to be occupied by a kind of table-land, with which the principal chains connect themselves more or less directly. Of these the most extensive may be traced from Cape Dath, on the west coast, in $2^{\circ} 5' 24''$ N. lat., northwards through the length of the island, which it divides as water-



Sketch-Map of Borneo.

shed into two portions, a north-western of comparatively narrow dimensions, and a south-eastern comprising the rest of the island. The different parts of the chain are known by various local names, as the Krimbang or Bayang-Miut, the Batang-Lupar, the Madi, and the Anga-Anga Mountains. In the north-west corner of the island it attains its highest elevation in Kini-balü, or St Pietersberg, which is generally supposed to be the highest peak in the whole island. According to the trigonometrical measurement of Capt. Belcher the summit is 13,698 feet above the level of the sea, but this was in 1851 reduced to 9500 by Messrs Low and St John, who were the first to ascend the mountain. A second great chain, known as the Kaminting Mountains, stretches south-west from the Anga-Anga, and fills the south-west corner of the island with numerous offshoots and underfalls; and a third starting from the same quarter strikes first south-east and then south along the southern part of the eastern coast, and is known as the Meratu Mountains. A fourth chain, of which the most important part bears the name of Sakuru, runs almost due east to Cape Kamiungun.

Unlike the most of the larger islands of the archipelago, and in remarkable contrast with Java, Borneo seems to possess no active volcanoes. Many of the peaks, however, bear distinct evidence of former activity in regular craters, now in some cases forming lakes of salt water. The prevailing rocks are limestone, slate, sandstones, conglomerates, and on the mountain tops syenitic granite. The limestone hills are remarkable for the number of their caves, many of which, such as those of Rumbary, are a source of wealth to the natives, as they afford shelter to swallows that build edible nests.

The island, which is abundantly supplied with rivers and streams, may be hydrographically divided into five principal versants. Of these the shortest lies along the north-

western slope of the Krimbang and Kini-balü range, and discharges its waters into the Chinese Sea. The most important of its rivers are the Sarawak, the Batang-Lupar, the Seribas, the Rejang (which is navigable for 140 miles), the Baram (about half a mile wide at its mouth), the Limbang or Bruni River, the Tewan, the Bintulu, and the Tampasuk, the last two having their sources in Mount Kini-balü itself. In the south-western versant the largest river is the Kapuas, which, rising towards the centre of the island, in about 114° E. long., falls, after a long and winding course, into the sea between Mempawa and Sukkadana. It has eight navigable mouths, and at Sintang, where it receives the Melawi, its principal tributary, it has a breadth of 1072 feet and a varying depth of 6 to 11 fathoms. The Banjarmasin or Barito, which is the master stream of the southern versant, rises in the Kuti-Lama Lake, and reaches the Sea of Java in $114^{\circ} 30'$ E. long. Its upper channel is greatly interrupted by rocks and waterfalls, but the lower part of its course is wide and navigable, and traverses a rich alluvial district. Cross branches unite it with two rivers of considerable size towards the west, the Little Dayak or Murung and the Great Dayak or Kahayan, and still further west are the independent rivers Mendawi, Sampit, Pembuang or Surian, and Kota-Waringin. Passing over the south-east corner of the island, which is watered by a large number of short mountain streams, we reach the one great river of the eastern versant, the Kuti (Coti) or Mahakam, which, rising in Mount Lassan-Tula, flows east, with a rapid and sinuous course, and falls by numerous mouths into the Strait of Macassar. Most of the rivers of the northern versant are comparatively small, as the island narrows into a kind of promontory. Besides the Sebuku, which rises in Mount Pentyeangan and falls into the sea at Temelingan, the Berou, the Gunong-Tebur, and the Bulungan are all worthy of mention.

Among the lakes of Borneo that of Kini-balü, near the mountain of the same name, is regarded as the largest, but many others are of considerable size. The Danau Sriang, for example, on the Kapuas River, is, according to Dr E. van Martens, larger than the Lake of Constance. In the valley of the Banjarmasin are the Babi and the Pamingir (or Telaga) lakes, the latter of which supplies nearly all the inhabitants of the kingdom with fish; and in the district of Sintang there is an extensive sheet of water, on the Kapuas-Tawang, which was discovered in 1825, and is known by the various names of the Luar, Sumbah, Malayu, or van Capellan Lake.

In spite of the equatorial position of the island its climate is nowhere oppressive, and in many places might almost be called temperate. At Pontianak, for example, which is almost under the equator, the mean reading of the thermometer is 82° , while it varies from 76° to 79° at sunrise, and hardly ever, even at noon, exceeds 92° . The difference between the rainy season and the dry is not rigidly marked; the atmosphere is moist all the year round, and while, on the one hand, there is hardly a day of continuous downpour, there is hardly, on the other hand, a day without a shower. During the rainy season, which extends from November to May inclusive, the torrents, while they last, are tremendous, and the wind is frequently violent. Over such an extensive area there is, of course, great variety in the climatic character of different districts, especially when viewed in relation to health. Some places, as Bidi, for example, are notoriously unhealthy; but from the statistics of the Dutch Government it appears that the European has in general no more to fear in Borneo than in the island of Java. Among the native races the prevailing diseases are principally those that arise from bad food or want of cleanliness. Scrofula is common throughout the

country, and elephantiasis is frequently met with on the coast. Small-pox, dysentery, and fevers are the usual epidemics; and ophthalmia sometimes attacks whole tribes. About a sixth of the native population in some quarters suffer from a kind of ringworm, called kurab, which is identified with *herpes farinosus*. * Consumption is not uncommon.

The mineral wealth of Borneo is great and varied, including diamonds, gold, platina, quicksilver, cinnabar, copper, iron, tin, antimony, petroleum, sulphur, rock-salt, marble, and coal. Landak and Pontianak are the best diamond districts, and Sambas, Landak, Montrado, and Borneo Proper furnish the greatest quantity of gold. The annual amount of gold collected in the island cannot be ascertained; but the amount exported from Bruni in 1870 was 5789 dollars. Coal of excellent quality is found in the valleys of the Banjarmasin, the Kuti, the Gunong-Tebur, and the Melawi, as well as in Sarawak, and in the island of Labuan. The Kuti deposit was discovered in 1845 or 1846 above Samarinda, and has since been struck in a number of places along the main river and several of the tributaries. A mine was opened at Pelarang, but does not seem to be at present worked. Another, however, at Pengaron, on the Riam Kiva, yields annually about 9000 or 10,000 tons. The coal-fields in Borneo Proper were conceded to Sir James Brooke in 1846, and since 1868 have been in the hands of the Oriental Coal Company, which has as yet taken no advantage of its rights. Antimony was discovered to be a Bornean product by Mr J. Craufurd, the well-known geographer, who, in 1825, learned that a quantity had been brought to Singapore by a native trader as ballast. The supply is practically unlimited, and the chief mine is at Bidi in Sarawak.

The fauna of Borneo comprises a large variety of species, many of which are numerically of great importance. Among the Quadrumana, which are very well represented, the most remarkable is the orang-outan (or *mias*, as it is called by the natives), an animal only to be found elsewhere in the Island of Sumatra. It frequents the low-lying districts, especially in the neighbourhood of the Dyak plantations. The wawah, a kind of gibbon, several *Semnopithecii* (as the long-nosed ape and the golden-black or chrysomelas), and the large-eyed *Stenops tardigradus* are also worthy of mention. The larger beasts of prey seem to be altogether wanting, so that little check is put on the natural fecundity of the gaminivorous species. A small panther and the *Felis macrocelis* are the largest animals of the cat-kind known; for though the tiger has sometimes been reported to occur in the mountains, its presence has never been verified. The Malay or honey bear is very common. The rhinoceros is found on the north-west coast, and the elephant, introduced by the Chinese or Portuguese, in the neighbourhood of Cape Unsang. Wild oxen of the Sunda race are not uncommon; and the whole island swarms with droves of wild pigs, which are distinguished by a curious protuberance of hair on each side of the head. These furnish food not only to the Dyaks, who are very fond of the flesh, but also to the crocodiles that abound in the principal rivers. Three or four species of deer are enumerated, one of which, the pelandok of the Malays, is remarkable for its smallness and beauty. Squirrels, porcupines, civet-cats, rats, bats, and lizards are well represented, and snakes of various kinds, from the boa constrictor downwards, are abundant, while the marshy districts swarm with frogs and leeches. The latter attach themselves in a most troublesome manner to the passing traveller. A remarkable flying-frog was discovered by Mr Wallace. Birds are comparatively rare in many quarters; the most important being eagles, vultures, falcons, owls,

horn-bills, cranes, pheasants,—notably the Argus-pheasant,—partridges, ravens, crows, parrots, woodpeckers, doves, and swallows. The *Cypselus esculentus*, or edible-nest swallow, is very common. Mosquitoes and sandflies are the chief insect pests, and in some districts are very troublesome. There is also a kind of ant called the *sumpit-api* or fire-ant, the sting of which is very painful. The lepidopterous insects are remarkable for their number, variety, beauty, and size. In one favourable situation Mr Wallace caught 120 different species of moths in one night. The Coleoptera are no less numerous represented, as, indeed, might be expected in so richly-wooded a region. The lakes and rivers, as well as the surrounding sea, abound with fish. Dr Bleeker in his "Bijdragen tot de Kennis der Ichthyologische Fauna van Borneo," in the *Natuurkundig Tijdschrift van Nederl. Ind.*, describes 176 species which he obtained during his residence in the island.

The domestic animals of Borneo are few both in number of species and for the most part in number of individuals. The character of the country has prevented the development of pastoral modes of life. In some districts, as in the neighbourhood of Ambong, there are bullocks of the Brahmin breed, about thirteen hands high; the buffalo is sometimes employed in agriculture; and sheep and goats occur. The cat and dog are both domesticated. A few horses, introduced by Europeans, and only possessed by the wealthier classes, are found in Banjarmasin and Sarawak.

The flora of Borneo is very rich, the whole surface of the island being clothed in luxuriant vegetation. The king of the forest is the *tappan*, which, rising to a great height with a single branchless stem, is crowned with a splendid dome of foliage. From the wood of this tree the chiefs construct their official seats. The iron-wood, so remarkable for the durability of its timber, is abundant; it is used by the natives for the pillars of their houses, and forms an article of export to China. It is almost rivalled by the *kayu temesu* in hardness. In all about sixty kinds of timber are furnished in more or less profusion. Palm-trees are abundant in great variety, including the *nipa*, cabbage, fan, cocoa-nut, and sago palms; the two last afford large supplies of food to the natives. Gutta-percha, camphor, cinnamon, cloves, nutmegs, gambir, and betel-nuts are all produced in the island; most of the tropical fruits flourish, such as the mangosteen, the lansat, rambutan, jack, jambon, and blimbang; nor must the wonderful durian be forgotten, of which Mr Wallace enthusiastically declares that it is worth a voyage from Europe to taste it. It is a large fruit with an exceedingly strong spiked outer covering, and not unfrequently inflicts severe wounds by falling on the passers by. Yams, potatoes (an indigenous sort), melons, pumpkins, cucumbers, pine-apples, and bananas, sugar, pepper, cotton, and tobacco are cultivated, though not as yet on a very extensive scale. In the south-eastern division of the Dutch territory the export of cotton was in 1854 1795 picols. The product of the wild plant is very good, and is exported from Borneo Proper. Among the more beautiful of the flowering plants are rhododendrons, orchids, and pitcher-plants,—the last reaching a most extraordinary development, especially in the northern districts about Kini-balü. Epiphytous plants are very common, many that are usually independent assuming here the parasitic character. The *Vanda Lowii*, for example, "grows on the lower branches of trees, and its strange pendent flower-stalks often hang down so as almost to reach the ground." Ferns are abundant, but are not so varied as in Java; Mr Wallace collected fifty species.

The population of Borneo consists of a considerable variety of races, of very different origin, and of different degrees of civilization. The most important numerically are the Dyaks, the Malays, the Chinese, and the Buginese