

the crown. The laws of succession are defined with great distinctness in the constitution, and are the same as in England.

In Brazil there is no privileged aristocracy, but descent from the noble families of Portugal, length of time in the service of the country, or large fortune, gives a certain claim to the privileges of aristocracy readily admitted by the Brazilians. The emperor rewards services, according to their difficulty or importance, with the titles of marquis, count, baron, or knight (*moços fidalgos*). Titles are not hereditary, but if a son prove himself worthy of his father, he inherits his title. There are in the empire six orders of chivalry; those of the Southern Cross, the order of Dom Pedro I., and of the Rose, created by the first emperor between 1822 and 1829; and those of Christ, St Benoit of Aviz, and St Theodor, adopted by Dom Pedro II. The senate represents the only element of aristocracy recognized by the constitution, and the democratic element preponderates, but its action is modified by the complicated system of election. The constitution established four powers,—the moderating, the legislative, the executive, and the judicial.

The moderating power is vested exclusively in the emperor as chief representative of the nation, that he may maintain the equilibrium and harmony of the other powers. He exercises this function with regard to the legislature by being empowered to choose the senators, to convoke or adjourn the general assembly, to dissolve the chamber of deputies, and to sanction the decrees of the assembly; as regards the executive, by appointing or dismissing at will the ministers of state; and over the judicial power, by suspending the magistrates, pardoning or commuting penalties, and granting amnesties. The person of the emperor is sacred, inviolable, and irresponsible.

The legislative power is vested, for the affairs of the empire, in the general legislative assembly with the sanction of the emperor, and for the provincial affairs in the provincial assemblies with the sanction of the president (governor) of the province. The general legislative assembly consists of two chambers, that of deputies and that of senators. The deputies are nominated by indirect election. Citizens, and even manumitted slaves, born in the empire, who possess an income of £22, 10s., choose the electors in parochial assemblies, and these electors nominate the deputies. The qualification for an elector is an annual income of £45; that of a deputy an income of £90. Minors, monks, and servants, are debarred from voting; naturalized foreigners, and persons not professing the religion of the state, are incapable of being elected deputies, but they can be senators. The deputies to the number of 122 are elected for four years, and must hold an annual session of four months, opening on the 3d of May. The senators (58 in number) are elected for life. Every province has a number of senators, equal to half its number of deputies; but they are nominated in triple lists, from which the emperor selects one-third. A senator must be forty years of age, and must possess a clear annual income of £180. The allowance of a senator is one-half more than that of a deputy. Each house nominates its own officers. When the two houses sit in general assembly, as at the opening and close of the session, to hear the emperor's speech, &c., the president of the senate presides, and the senators and deputies sit promiscuously. They sit apart, and proceed by way of bill, when they make laws, interpret, and suspend them; they determine the public charges, and assess the contributions, &c. The chamber of deputies has the initiative in taxes, in recruiting, and in the choice of a new dynasty. The senate has the exclusive privilege of taking cognizance of offences committed by members of the imperial family, councillors of state, senators, and

deputies, during the session; of enforcing the responsibility of secretaries and councillors of state; of convoking the assembly in case the emperor fail to do so within two months after the period fixed by law; and also of calling it together on the death of the emperor.

The executive power is vested in the emperor, assisted by his ministers and secretaries of state, who are responsible for treason, corruption, abuse of power, acts contrary to the liberty, security, or property of the citizens, and waste of public property. From this responsibility they cannot escape upon the plea of orders from the emperor. The executive functions are such as the convocation of the general ordinary assembly; the nomination of bishops, presidents, governors of provinces; commanders by sea and land, and ambassadors; the formation of alliances, and all foreign negotiations; the declaration of peace and war; and the granting letters of naturalization.

The ministers are seven, one for each of the departments of the empire and ecclesiastical affairs; justice; war; marine; finances; foreign affairs; and agriculture, commerce, and public works. One of these is president or premier. To these is superadded a council of state composed of twelve ordinary members, besides which it may have as many as twelve extraordinary members, all of them appointed for life. The council is divided into sections corresponding to the seven ministries, or sits in full meeting, presided over by the emperor. The prince or princess imperial, on attaining the age of eighteen, has a seat in this assembly. The council is merely consultative, and though its use is optional it is always heard on any important public question or appeal to the crown. The provincial governments are entrusted to a president in each, appointed by the executive power and immediately under its control: he is the supreme representative of government in the province, sanctions the resolutions of the provincial assemblies, and appoints provincial functionaries. The provincial assemblies, elected every two years by the same citizens who elect members of the chamber of deputies, deal only with matters immediately relating to the private or local interests of the province.

Every city, town, and village, with the surrounding district, has a municipal council composed of nine or seven members, elected directly by the citizens who possess an annual income of £22, 10s. This council is charged with all that concerns the good of the district, meets four times a year, besides extraordinary sessions, and every meeting may last as many days as may be found necessary for the expedition of business. They impose fines to a certain amount, and even enforce their decrees by a penalty of thirty days' imprisonment. They annually draw up a municipal budget, which is submitted to the provincial legislative assembly for approval. If their revenue and the produce of fines be not sufficient to defray expenses, an allowance from the provincial treasury is granted. Their decrees are called *posturas*, and the penalties imposed by them are enforced by the justices of peace. Their enactments can be annulled by the provincial legislative assembly.

The judicial power is independent; the judges hold their offices for life, and cannot lose them except by a condemnatory sentence. They are, however, responsible for any abuse of authority, and may be summoned before a supreme court of judicial ministers. In criminal cases all proceedings are public after the indictment. In civil cases arbitrators may be appointed, whose decisions are without appeal, and no civil lawsuit can be carried on without previous declaration that conciliatory means were tried in vain.

The constitution guarantees the inviolability of the liberty, safety, and property of Brazilian citizens, and of their civil

and political rights. Individual liberty is subject only to law, and in the same way liberty of thought and of the press are guaranteed. No one may be persecuted on account of religious belief, and every kind of labour or industry is free which does not interfere with public well-being. No one can be arrested without written orders from lawful authority.

For purposes of election the empire is divided into districts, each of which elects a fixed number of deputies for the general and provincial assemblies. These are again divided into colleges and parish assemblies. There are 46 electoral districts, 408 colleges, and 1451 parish assemblies. For administrative purposes the Brazilian territory is separated into 20 provinces, comprising 642 municipalities, including that of the capital; from various causes the number of municipalities is fluctuating. The ecclesiastical jurisdiction is exercised in 12 dioceses, one of which, that of São Salvador, comprehending the province of Bahia and Serigipe, is a metropolitan archbishopric. The whole of the dioceses are divided into 1473 parishes and 28 curacies. The diocese of São Salvador is the seat of a metropolitan court of appeal (*Relação*), composed of judges of appeal (*Jesembargadores*), who decide clerical matters finally. The diocese of São Sebastião comprises the municipality of Rio de Janeiro, its province, those of Espirita Santo and Sta. Catharina, and the eastern side of Minas Geraes. The provinces of Alagoas, Pernambuco, Parahyba, and Rio Grande do Norte form the bishopric of Olinda; Maranhão and Piahy the bishopric of the former name; Pará and Amazonas the diocese of Belem do Pará. The diocese of São Paulo includes that province, Paraná, and southern Minas Geraes; that of Goyaz its province and western Minas; the remainder of Minas forms the bishoprics of Marianna in the central, and of Diamantina in the northern part of the province. The diocese of Cuyabá consists of the province of Matto Grosso. The provinces of São Pedro do Rio Grande do Sul and of Ceará correspond to their respective bishoprics.

The judicial division of the empire is into eleven districts, each having a court of appeal competent to try all questions affecting the judges and military commanders. From the sentences of these courts there is but one appeal to a supreme court of justice, the members of which are denominated ministers, and by the constitution are counsellors to the emperor: this highest court takes cognizance of offences or errors committed by its ministers, by the judges of appeal, or by archbishops or bishops in non-ecclesiastical matters.

The districts of the Courts of Appeal are groups of provinces as follows:—

Pará and Amazonas	with the seat at Belém.
Maranhão and Piahy	{ S. Luiz de Maranhão.
Ceará and Rio Grande do Norte.....	{ Fortaleza.
Pernambuco, Parahyba, and Alagoas ..	{ Recife.
Bahia and Serigipe	{ S. Salvador.
Rio and Espirita Santo	{ Rio de Janeiro.
S. Paulo and Paraná	{ S. Paulo.
Rio Grande do Sul and Sta. Catharina ..	{ Porto Alegre.
Minas Geraes	{ Ouro Preto.
Matto Grosso	{ Cuyabá.
Goyaz	{ Goyaz.

Causes which do not ascend above a certain value, determined by law, are judged by *juizes de direito* within certain minor territorial limits, termed *comarcas*, again divided into *termos* or boroughs, which may include one or more municipalities, each of which has a municipal judge.

The civil laws, originally the same with those of Portugal, have been greatly modified by a number of new ones. A criminal code was organized in 1830 on the principles of Jeremy Bentham, and is considered very perfect and clear. The new form of procedure, and the new organization of

justices, is embodied in a code decreed in 1832. Finally, a new code of commerce, nearly copied from that of France was decreed in 1850.

To carry on the war of the Independence, and to crush a subsequent revolution in the northern provinces, the Government contracted two loans in 1824–5, of the nominal amount of £3,686,200; and on the recognition of its independence by Portugal in 1825, it undertook the liability of a loan of £1,500,000. The war with Buenos Ayres, and the assistance rendered by Dom Pedro to the constitutional party of Portugal, led to two farther loans in 1829, of the nominal amount of £769,200. Internal difficulties in 1839 compelled the regency to contract another loan of the nominal amount of £411,200. The dissensions in Portugal caused a temporary suspension in the payment of the dividends on the Portuguese loan, and in 1842, £732,600 stock were delivered to the Portuguese agents in settlement of this claim. The debt contracted and assumed by Brazil between 1823 and 1843, therefore, amounted to £7,099,200 nominal; and throughout all its difficulties and embarrassments the Imperial Government punctually and honourably provided for the dividends as they became due.

By the renewal in 1844 of the sinking fund, the operation of which had been suspended since 1828, the Portuguese and other loans were becoming gradually reduced. The long war with Paraguay from 1864 to 1870, however, very considerably augmented the public debt, costing the empire more than 460,000 contos of reis, or nearly £52,000,000. The public debt is now divided into the consolidated foreign and internal debts, and the floating debt. The foreign debt proceeds from loans negotiated in the London Exchange in 1865, 1871, and 1875; the internal debt from policies authorized in 1827, but mainly from a home loan of 1868. The floating debt consists of the small remaining portion of that contracted previously to 1827, of loans borrowed from various internal sources, of exchequer bills, and paper money. Under these heads the debt of the empire was officially stated on the 31st of March 1875 as follows:

External Debt (at 5 per cent. interest),	177,166 : 222 contos.
Internal	285,592 : 200 "
Floating	201,980 : 973 "
Total Debt,	664,739 : 395 = £74,739,000

(177,166 : 222 = 177,166 contos, 222 milreis; a conto or million of reis, gold = £112, 10s., or £1 = 8,890 milreis. 1 milreis = 2s. 3d. The financial accounts are kept in paper reis, of depreciated value, in proportion varying from 194 to 214 reis paper to 100 reis gold.)

For a few years previously to the declaration of the emperor's majority, the imperial expenditure had not been largely in excess of the revenue, and in 1836–37, the deficit only amounted to £53,600; but in 1840–41, the year of the emperor's majority, it rose to £408,000, and in consequence of a revolution in Rio Grande do Sul it went on increasing till in 1845 it had reached nearly treble that sum. But before 1850 the deficiency had not only been made good, but a large surplus began to accumulate, which remained at about an annual sum of £400,000 after 1853. On the outbreak of the war in 1864, increased taxation was necessary to enable the exchequer to meet the extraordinary expenses, but on the close of the ministerial accounts for 1870–71, a surplus of upwards of £900,000 remained. In amount the revenues of the empire have progressively ascended from £1,380,000 in 1837 to upwards of £6,000,000.

The financial account of the year 1872–73, presented to the Chambers in May 1875, was as follows:—

Revenue.	
Customs	£3,390,306
Taxes on Shipping	32,000
Export Duties	1,087,700
Railways	390,900
Posts	47,700
Telegraphs	7,700
Stamps	227,000
Inland Taxes	756,000
Extraordinary receipts from bonds, issue of paper money, and deposits.....	281,800
Carry forward.....	£6,221,600

Brought forward	£6,221,600
Fund for emancipation of slaves	86,200
Total state revenue 112,131 : 104 contos paper, ¹ or	£6,307,800
Provincial receipts	1,210,000
Municipal receipts	256,000
Total (133,195 : 180 contos)	£7,773,800

<i>Expenditure.</i>	
Home Department	£405,800
Justice	224,700
Foreign Affairs ..	58,900
Marine	1,006,600
War	1,358,300
Finances	2,375,000
Commerce	1,426,000
Total (121,874 : 462 contos)	£6,855,300

In the Budget for 1876-77 the receipts are estimated at 107,133 : 070 contos or £6,026,200 ; the expenditure at 105,378 : 914 contos or £5,927,600.

There are twenty-three custom houses, the amount of duties collected being largest in that of the capital, next in order those of Pernambuco, Bahia, and Pará.

Army and Navy.

The effective strength of the army and navy is every year fixed by the general legislative assembly, upon the data furnished by the ministers of the two departments. The army was originally organized on the principles established by Marshal Beresford when in the service of Portugal. It is principally from the northern provinces that the infantry is recruited, and from the southern that the best cavalry is obtained. A board, presided over by H. R. H. the Comte d'Eu, marshal of the army, is charged with the reformation of military legislation, and has been in session for some years. The actual army is thus composed, on a peace footing :—

a. Special corps, staff engineers and sanitary corps	427
b. Infantry, 21 battalions	9,864
c. Cavalry, 5 regiments and 2 battalions	2,484
d. Artillery, 3 regiments and 4 batteries, with 1	3,280
battalion of engineers	
e. A division stationed in Paraguay, of various arms	1,894
	17,949

On a war footing the army is raised to 32,000 men. Besides the regular army there is a national guard, which was organized in 1831, and comprised nearly 750,000 men in the latest returns, in cavalry, artillery, infantry, and reserve. This force has been disbanded for the present, to be re-organized on the completion of the census begun in 1872.

The police service of the empire is performed by city guards under military organization, under the provincial legislatures. The provinces of Pará, Pernambuco, Bahia, Rio Grande do Sul, and Matto Grosso possess military arsenals, recently reorganized. Military colonies for disciplinary or penitentiary objects, and also for protection of the frontiers, are dotted round the outskirts of the empire.

The navy is under the control of the minister of marine, assisted by a naval council instituted in 1855, organized after the plan of the French admiralty. There are six arsenals, and a pyrotechnical laboratory was established near Rio in 1868.

The navy is principally manned by civilized aborigines and negroes, organized in bodies called imperial sailors, with a certain military discipline. The aborigines have a peculiar aptitude for a maritime life. Officers destined for the Brazilian navy receive a suitable education in the naval school of Rio, and for some years the Government introduced the practice of sending the more apt scholars to serve in the British, French, and American navies. In this way a body of efficient naval officers has been formed.

¹ Assumed to be at 200 paper for 100 gold.

In 1875 the naval force was thus constituted :—

<i>a. Steam-vessels—</i>		
Armour-plated ships	19	73
Frigate	1	12
Corvettes	8	61
Gun-boats	23	47
Transports	7	—
<i>b. Sailing-vessels—</i>		
Corvette	1	22
Sloops and smaller vessels	2	15
	61	230

These vessels were manned by 4136 seamen, including gunners and marines. One armoured vessel and four corvettes were on the stocks in 1875.

The Roman Catholic is the established religion of the empire. All other forms of worship are tolerated, but may only be practised privately. Dissenters enjoy all political and civil rights, with the sole exception of being elected into the chamber of deputies. The peculiarity of the ecclesiastical organization of the Brazilian church is, that the clergy do not receive the tithes. As a conquest of the military and religious order of Christ, all the churches of Brazil belonged from the beginning to that order, whose grand-master appointed the bishops, and submitted them directly to the approbation of the Pope. The order became so powerful that the king obtained the union of the grand-mastership to the crown, and so disposed of all the livings and other benefices of the order, and paid from his treasury the salaries of the clergy, receiving the tithes from the people as a civil tax. The tithes were afterwards abolished as oppressive. This organization is still recognized by the Holy See, and in the capacity of grand-master of the order of Christ the emperor appoints all the bishops and other ecclesiastical functionaries. There are convents of Franciscans, Carmelites, and Benedictines. These are very rich, and generally very learned men, who are usefully employed in teaching the sciences. They pay double annual taxes as a compensation to the treasury for not paying taxes upon transfers of property, as theirs is not transferable.

Primary and public schools, supported by the state through the provincial and municipal legislatures, for gratuitous instruction, have been established throughout the empire, under the general control of the ministry of the interior. In some of the provinces instruction has been made obligatory. Besides these, in which the teaching is limited to moral and religious instruction, reading and writing, the elements of grammar and arithmetic, there is a second or higher order of schools in most of the provinces, either public or private, in which such subjects as the elements of history and geography, especially that of Brazil, the principles of the physical sciences, elementary mathematics, drawing, Portuguese, French, and English are added. The Dom Pedro II. Imperial College of the capital has twenty-two professors, and provides a course of study of seven years, at the termination of which a degree of B.A. may be gained. Each diocese has a seminary for theological instruction, and these, with the exception of that of S. José in the capital, are subsidized by Government. Military training is under the care of the war department, and is carried on in preparatory and regimental schools, and further in military academies in the capital and in Rio Grande do Sul. A practical school of gunnery is established in the Campo Grande, near the capital ; a central college with seven professors also educates in the higher branches of military science and engineering.

An imperial astronomical observatory has been appended to the central college for the instruction of observers, and the recording of astronomical and meteorological phenomena. There is also a state observatory in Pernambuco. The naval college is established on board a war vessel, the cadets being drafted to it from a preparatory naval

school. A practical school of artillery is attached, and naval construction is taught in some of the higher national schools ; but students are also sent to the best European navy yards. There are two faculties of medicine, one at Rio de Janeiro, and another at Bahia, each having a curriculum of six years, and conferring degrees. The faculties of law are seated at São Paulo and Recife in Pernambuco. An institute of commercial instruction is presided over by a Government commissioner in Rio. Other remarkable institutions are those for the education of the blind in Rio, and a deaf and dumb institute. An academy of fine arts is established, with schools, in Rio, as well as a conservatorium of music. A national museum of natural history was created in Rio in 1817, and is the most important of South America. Others of like character have been founded in Pará, in Ouro Preto, and in Ceará. The national public library in Rio is the most important establishment of its kind, having more than 100,000 volumes on all subjects. Extensive libraries are also attached to all the colleges and academies ; and popular libraries have been created in each of the provincial capitals.

The press is represented by six daily newspapers in the capital, of which the *Diario do Rio* is the oldest, having been founded in 1817. The provincial towns together have nearly 200 newspapers.

The most important of the scientific societies of the empire is the Historical, Geographical, and Ethnographical Institute of Brazil, founded in 1838. There are besides this twenty larger scientific associations in Rio and the provincial capitals. With all these appliances, however, owing to the immense territory over which the population is scattered, the spread of instruction is exceedingly difficult, and the grossest ignorance yet abounds in the interior of almost every province.

It is obvious, from the insufficient establishments for general education, that the intellectual development of individuals must have been for a long period achieved in a great measure by unaided exertions. Now things are better, but in the more thinly inhabited districts devotion to such pursuits must not be expected in men exclusively occupied in procuring subsistence and securing self-defence. Even where the population is more dense, a lazy feeling of animal comfort represses the exertions of the majority. It is among the more aspiring class, who aim at the learned professions or state employment, and who are consequently obliged to cultivate their minds, that we must look for that attachment to intellectual pursuits which is rarely acquired except from habit. In the theological seminaries, established at the seat of each bishop, little more was inculcated than a knowledge of the classics, an outworn scholastic system of logic, and a knowledge of the routine duties of a priest. The schools of medicine in Rio Janeiro and in Bahia, from the attention bestowed upon practical surgery and anatomy, have done more to awaken the mind. The situations under Government requiring a certain proficiency in practical mathematics and natural history have also diffused a knowledge of and a taste for these pursuits. The number of foreign engineers and naturalists encouraged to settle in Brazil has rendered the natives in some measure acquainted with all that has been of late achieved in Europe in the mathematical and experimental sciences.

In parliament and by the press the most delicate political questions have been discussed with success, and the progress of the Government and of legislation evinces a certain administrative foresight and prudence rarely displayed by other new states.

The Brazilians who frequent the university of Coimbra in Portugal often distinguish themselves among their fellow-students ; and notwithstanding the difficulties they

have to contend against, not unfrequently rise to the highest offices of the state.

The most remarkable writers in the Portuguese language on political economy and commercial law were Coutinho, bishop of Pernambuco, and Silva-Lisboa, afterwards Viscount de Cayron, a senator of the empire, both Brazilians. Among historians the Brazilian Rocha Pita is distinguished, and Moraes the lexicographer of the Portuguese language belonged to Pernambuco. Portugal is poor in dramatic literature, but one of her most distinguished comic poets was the Brazilian Silva, who afterwards fell a victim to the inquisition of Lisbon. In epic poetry, on the other hand, Portuguese literature is rich. Brazil claims the authorship of two of its most beautiful poems of this class, the *Caramuru* of Duão, and the *Uruguay* of Gama. The best of the minor poets is Gonzaga, whose collection of lyrics is well known under the title of *Marília de Dirce*. Little inferior to him is Souza Caldas, whose translation of the Psalms denotes a talent of the first order. Claudio, Avarenga, Gregorio de Mattos, Euzebio de Mattos, Gusmão, in former times ; and more recently, Odorico, Mendes, Borges de Barros, Domingos Magalhães, Marquis of Paranguá, A. de Macedo, Porto-Alegre, Barbosa, and others are well worthy of notice as lyric poets.

Religious eloquence was formerly much cultivated in Brazil, and Vieira is one of the most original and eloquent preachers known. In more recent times Antonio Carlos and Montalverne deserve particular notice. In the natural sciences Frei Leandro, Arruda, Camara, and José Bonifacio de Andrada are known for their works and discoveries.

In sacred music José Mauricio, a mulatto, left compositions of merit that were executed in the chapel of D. John VI.

The Brazilians have a natural taste for music, and an Italian theatre, maintained with but little interruption in Rio de Janeiro, has assisted in improving and refining this taste. The old-fashioned Brazilian instrument, which was a particular kind of guitar, has almost disappeared from the large cities, but is still frequently employed in the provinces to accompany the *modinhas* (romances) which are peculiar to Brazil, and which have a particular style.

The school of the fine arts of Rio de Janeiro has produced some good but no remarkable painters. Of late, however, the most promising artists have been annually sent to Italy at the public expense to prosecute their studies in that country.

The Brazilians are in general hospitable, generous, and charitable, endowed with great pride and vanity, and susceptibility of character, and are easily led away by flattery. The unlimited power they exercise over the African slaves, and the colonial system from which they have but a short time been freed, the imperfect religious education, the facility with which they can live in abundance at small cost, while the climate enables them to dispense with many things necessary in other countries, the enervating effects of the hot atmosphere, all combine to stimulate the qualities and vices which we must expect in this people.

There is in the Brazilian national character, with great mildness and generosity, a certain tendency to vindictiveness. Homicides for the sake of vengeance alone are proportionally as numerous in Brazil as in certain countries of Europe ; while the crimes against property are much fewer. The greatest number of homicides, however, takes place in the most backward provinces of the centre and north.

The Roman Catholic religion predominates in Brazil, and although there are enlightened men among the clergy, a great number of the priests are ill educated, and the institution of celibacy keeps the members of the principal

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families from entering the profession. Such is the want of priests that the Government finds itself obliged to send to Italy for them. Among educated classes the spirit of materialism of the French writers of the 18th century made great progress, but a considerable reaction has lately taken place. The lower classes, above all in the interior, are still deplorably superstitious.

In several of the provinces contentions have arisen of late years between the church and freemasonry, and the excommunication of the members of the craft and the closing of the churches to which they belonged have awakened religious discussions and agitations. The Jesuit priests were expelled from the province of Pernambuco in 1875, and the bishop of that diocese, tried before the lav tribunal, was condemned to fine and imprisonment.

Brazil is not specially a manufacturing country, and its national industries of mining (with smelting of the metals), collecting and polishing precious stones, and salt making, already referred to, with tanning and hide working, have the widest range. The state has, however, encouraged and in some cases subsidized special manufactures which were of value in developing the resources of the country. Among these seventeen foundries, manufacturing engines and agricultural implements, have supplied a great national want. The home hat factories of Brazil have now all but superseded the imported hats by their products. In almost every city there are manufactories of soap, oil, and candles, which are made, not only of stearine and tallow, but of wax, and in the north from the valuable Carnauba palm. Rum distilling is largely carried on in the sugar districts, and cigars are extensively made, especially at Bahia. Gold and silver smiths and jewel workers are foremost among the delicate handicraftsmen, and excel in their workmanship.

There are now two cotton-cloth factories in Rio, five in Bahia, two in Minas, and several in S. Paulo, and this branch of industry is extending.

Ship-building. Ship-building is diligently prosecuted in many of the ports, and Rio has launched several fine iron-clad vessels from the navy yard. A law passed in 1871 enabled Government to subsidize companies for the construction of more commodious docks, and these have been begun in Rio, Bahia, and Maranhão, at Santos in S. Paulo, and at Paranaguá in Paraná.

Fisheries. Whale-fishery is carried on to some small extent from the ports of Bahia and Sta. Catharina. The fine coastal fisheries are not yet taken advantage of to nearly their full power; on the other hand, large quantities of dried cod-fish are imported. On the upper Amazon and its tributaries a considerable quantity of oil is collected from the eggs of the turtle, and is sent down in earthen pots containing 50 to 60 lb weight each.

Jerked beef, an important article of general consumption, is chiefly prepared in the "Charqueadas" of Rio Grande do Sul.

The coastal and fluvial communications of the empire are maintained by eighteen lines of steam-vessels, which receive an annual subsidy from the state (amounting to £150,000 in 1875). A North American company, keeping up a regular traffic between the ports of Brazil and the United States, is also aided by Government. Besides these the ocean lines of large vessels from Britain, Germany, and France, touch regularly at the chief points in passing to the La Plata. Almost all the navigable rivers of Brazil have now their regular steam packets. The Amazon has been navigated by steam for nearly twenty years; and since the passing of the decree of September 1867, by which its waters were opened to the trading ships of all nations, direct commerce from foreign countries with the interior ports on its banks has begun to be developed.

Within recent times the construction of railroads has been progressing very rapidly under the Government and in private hands. In 1867 there were but six short lines working; in 1873 there were fifteen distinct railways. Three main trunk lines are being actively extended by the state: the first called the Dom Pedro II. line, passing from Rio de Janeiro to Minas Geraes, is being extended thence to the head of the navigation of the São Francisco, and is planned to reach the valley of the Tocantins and Pará; the second trunk line is designed to unite the navigation of the Amazon with that of the Paraguay, through the head of the valley of the Tocantins and Araguaya; the third line, already partly executed, beginning at Rio will pass through the capitals of S. Paulo and Paraná to Porto Alegre in Rio Grande do Sul. Many other lines have been begun or are projected under the superintendence of the provincial assemblies. The ordinary roads are in an exceedingly backward condition throughout the empire, and those which are more than rude tracks are of very small extent. A fine macadamized road, however, called the "Union and Industry," joins the capital with Minas Geraes, and others extend for short distances from the chief towns. There are also a few canals. It is but seventeen years since the first small line of telegraph was stretched in Brazil within the capital, but now a double line unites the maritime towns from Pernambuco to Rio Grande do Sul. Many other lines are being constructed, and in June 1874 submarine telegraphic cable was completed from Europe to the Brazilian ports.

The commerce of Brazil, despite the disadvantages against which it has had at various times to contend, has been on the whole uniformly progressive. These disadvantages consisted chiefly in the restrictions originally imposed on the young colony by the jealousy of the mother country, which refused to admit the Brazilian products except at certain stated seasons of the year. The exportation of native productions to the Old World was limited to the ports of Rio, Bahia, Olinda, and Paraíba. These restrictions continued in force long after analogous measures had been exploded in the commercial systems of other countries, and were not repealed till the beginning of the present century. In 1810, all the ports of Brazil were thrown open to British goods on the payment of duty at the rate of 15 per cent., and though this rate has been greatly increased by the tariff of 1844, the average annual value of manufactured goods imported into Brazil from Great Britain alone, chiefly cotton, iron, woollen, and linen goods, amounts to nearly £4,500,000.

The value of the imports and exports of Brazil in 1808 was estimated at £2260; it has gradually increased, with little fluctuation, till at the present time the annual value of trade is not less than £40,000,000. The trade of the empire is mainly with Great Britain (which sends more than a third of the imports, and receives a great share of the exports), France, the United States, Portugal, Germany, the Argentine Republic, and Belgium. In the order of their value the chief exports are coffee, hides, sugar, cotton, india-rubber, tobacco, yerba-mate, diamonds, and rum. Since 1853 the value of the exports from the country has in most years been somewhat in excess of that of the imports. The whole number of ships entering and leaving the Brazilian ports in recent years averages about 30,000.

See *Brazil and the Brazilians*, Rev. D. P. Kidder and J. C. Fletcher, 1857; *The Naturalist on the River Amazons*, H. W. Bates, 1863; *Travels on the Amazon and Rio Negro*, Alfred R. Wallace, 1853; *The Amazon and Madeira*, translated by Church, Keller, 1874; *Explorations of the Highlands of Brazil*, Capt. R. F. Burton, 1869; *Journey in Brazil*, Professor Louis Agassiz, 1868; *Scientific Results of a Journey in Brazil by Professor Louis Agassiz*, by Professor C. F. Hartt, 1870; *Climat, géologie, faune, et géographie botanique du Brésil*, Emmanuel Liass, 1872; *Notions on the Chorography of Brazil*, J. Manoel de Macedo, translated by Le Sage, 1873; *The Empire of Brazil at the Vienna Exhibition*, Rio de Janeiro, 1873; *The coast of Brazil, and trade of its ports*, Lieut.-Commr. H. H. Goringe, Washington, 1873; *Atlas do Imperio do Brazil*, por Candido Mendes de Almeida, Rio de Janeiro, 1868. (K. J.)

BRAZIL, ISLAND OF, and other imaginary islands in the Atlantic. For a long time before the discovery of America, the fancies of navigators or of cosmographers had scattered over the Atlantic a number of islands, either wholly imaginary, or so detached from the germ of truth which had suggested their existence as to represent no fact in nature. Several such islands are described in the Arabic geography of Edrisi (1153-54 A.D.), and if, passing over more than four hundred years, we take up an atlas of Münster or Mercator we shall find that the northern Atlantic, instead of presenting a vast blank as in our most recent charts, is almost as full of islands and shoals as the heaven is of stars. To our present category belongs the island of St Brandon, the supposed discovery of an Irish eremite of the 6th century, of whose voyage many wonders are related. Such also were *Antilia* and the *Island of the Seven Cities*, connected with another legend of uncertain date, which described this as the refuge of a body of Christians, who, in flight from the Saracen conquerors of the Peninsula, had, under the guidance of their seven bishops, committed themselves to the wide ocean; such were *Mayda* or *Asmaide*, the *Isla Verde*, or Green Isle (which the natives of the Hebrides still think they see beneath the western sun), but none more famous and recurrent than the *Isle of Brazil*. The name of this island connects itself with the red dye-woods known by that name in the Middle Ages, a name that possibly also may have been applied to other vegetable dyes, and so may descend from the *Iusula Purpuraria* of Pliny. Its first appearance on a map appears to be (*I. de Brazi*) in the Venetian portulano of Andrea di Bianco (1436), where it is found attached to one of the larger islands of the Azores. When this group became better known and was colonized, the island in question got the name of Terceira. And the conservative spirit of map-makers then sought a new position for that Island of Brazil which they found in the charts of their predecessors, and this island grew in (imaginary) importance and size. In time, better knowledge of the Atlantic showed that these must be exaggerated, but belief in the island's existence endured.

The conservative spirit just referred to has indeed preserved in some shape most of the names mentioned above. The name of the *Seven Cities* survives as applied to a volcanic district of the Island of St Michael's (Azores). *Antilia* and *St Brandon's Isle* were conspicuous on the maps which were probably in the hands of Columbus on his first western voyage. The latter name has disappeared indeed, but the former survives in a plural form, as applied to the West Indies (*Antilles*). So also it is probable that the familiar existence of "Brazil" as a geographical name led to its bestowal upon the vast continental region of South America, which was found to supply dye-woods kindred to those which the name properly denoted. The older memory, however, survived also, and the *Island of Brazil* retained its place in mid-ocean, some hundred miles to the west of Ireland, both in the traditions of the forefathers and in charts. In Purday's *General Chart of the Atlantic*, "corrected to 1830," we find the *Mayda* indeed noted as "very doubtful," but "*Isle Verte* or *Green Rock*" (41° 48' N. lat., and 26° 10' W. long. with the remark, "Existence lately confirmed;" and "*Brazil Rock* (high)," with no indication of doubt, in 51° 10' N. lat., 15° 50' W. long. In a chart of currents by the late Mr Findlay, dated 1853, these names appear again. But in his 12th edition of Purday's *Memoir Descriptive and Explanatory of the N. Atlantic Ocean* (1865), the existence of these islands is briefly discussed and rejected by Mr Findlay, with the intimation that their names would be entirely omitted in future editions.

Thus the official sepulture of the old tradition of the island of Brazil took place only eleven years before the date of this article (1876). And now the surface of the Atlantic, as represented in the latest Admiralty charts, shows between St Kilda and Bermuda, between Newfoundland and the Azores, but one point rising above the water, viz., the sugar loaf of *Rockall*, in 57° 35' 52" N. lat., 13° 42' 21" W. long. (H. Y.)

BRAZIL NUTS are the seeds of *Bertholletia excelsa* (*B. nobilis* of Miers), a gigantic tree belonging to the natural order *Lecythidaceae*, which grows in the valleys of the Amazons and generally throughout tropical America.

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The tree attains an average height of 130 feet, having a smooth cylindrical trunk, with a diameter of 14 feet 50 feet from the ground, and branching at a height of about 100 feet. The lower portion of the trunk presents a buttressed aspect, owing to the upward extension of the roots in the form of thin prop-like walls surrounding the stem. The fruit of the tree is globular, with a diameter of 5 or 6 inches, and consists of a thick hard woody shell, within which are closely packed the seeds which constitute the so-called nuts of commerce. The seeds are triangular in form, having a hard woody testa enclosing the "kernel;" and of these each fruit contains from eighteen to twenty-five. The fruits as they ripen fall from their lofty position, and they are at the proper season annually collected and broken open by the Indians. From Para alone it is estimated that upwards of two and a half millions of fruits, equal to fifty millions of "nuts," are exported annually, in addition to the large quantities which leave other Brazilian harbours, and Demerara, Cayenne, &c. Brazil nuts are largely eaten; they also yield in the proportion of about 9 oz. to each pound of kernels a fine bland fluid oil, highly valued for use in cookery, and used by watchmakers and artists.

BRAZIL WOOD is one of several dye woods of commerce which come from the West Indies and South America, belonging to the genera *Cesalpinia* and *Peltophorum* of the natural order *Leguminosae*. The species to which the various woods belong have not been well determined, but commercially they are distinguished as Brazil wood, Nicaragua or Peach wood, Pernambuco wood, and Liraa wood, each of which has a different commercial value, although the tinctorial principle they yield is similar. Commercial Brazil wood is imported for the use of dyers in billets of large size, and is a dense compact wood of a reddish brown colour, rather bright when freshly cut, but becoming dull on exposure. The colouring-matter of Brazil wood is freely soluble in water, and it is extracted for use by simple infusion or decoction of the coarsely-powdered wood. When freshly prepared the extract is of a yellowish tint; but by contact with the air, or the addition of an alkaline solution, it develops a brick red colour. A chemical principle, termed brazilin, has been isolated from Brazil wood. It crystallizes into hexagonal amber yellow crystals, which are soluble in water and alcohol. The solution when free of oxygen is colourless, but on the access of air it assumes first a yellow and thereafter a reddish yellow colour. With soda-ley it takes a brilliant deep carmine tint, which colour may be discharged by heating in a closed vessel with zinc dust, in which condition the solution is excessively sensitive to oxygen, the slightest exposure to air immediately giving a deep carmine. With tin mordants Brazil wood gives brilliant but fugitive steam reds in calico-printing; but on account of the loose nature of its dyes it is seldom used except as an adjunct to other colours. It is used to form lakes which are employed in tinting papers, staining paper-hangings, and for various other decorative purposes.

BRAZZA, the ancient *Brattia*, an island in the Adriatic, off the coast of Dalmatia, in the circle of Spalatro, and eight miles from that city. It has an area of 170 square miles, and a population of 15,500. The surface is rugged and mountainous, but is industriously cultivated, and its wine is accounted the best in Dalmatia. It produces also oil, figs, almonds, and saffron; but the corn crop scarcely supplies the wants of the inhabitants for three months. There are about twelve or thirteen hamlets in the island, the most important being San Pietro, Neresi, Bol, and Milna.

BREAD. See **BAKING**, vol. iii. p. 250.

BREAD-FRUIT. This most important food staple of the tropical islands in the Pacific Ocean is the fruit of

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