ART. VI.—*Narrative of the Voyages of H. M. S. Adventure and Beagle; detailing the various Incidents which occurred during their Examination of the Southern Shores of South America, and during the Beagle's Circumnavigation of the Globe.* By Captains KING and FITZROY, R. N., and CHARLES DARWIN, Esq., Naturalist of the Beagle. 3 vols. 8vo. London: 1839.

THE day may perhaps arrive when the British navy will be thought to derive as valid a title to fame from its peaceful achievements, as from its triumphs in war. At all events, the historian may give vent to his admiration when he states that the ascendency maintained by England for so many centuries on the ocean, has been chiefly founded on and constantly directed to promote the arts of civilisation. The shores ravaged in the sixteenth and seventeenth centuries by Drake, Cavendish, and Dampier, have been surveyed in the eighteenth and nineteenth centuries by Vancouver, King, and Fitzroy, for the benefit of mankind. The career of the heroic bucaniers was, in their days, deemed one of honour; but the rights of humanity are now better understood; and it is no mean boast that England has known how to maintain the naval superiority acquired in former times, without derogating from the improved spirit of the present age. Still, there are many for whom victories and successful violence have superior charms; and possibly some one may ask, where shall we find Sir Francis Drake's equal now-a-days? We answer that the nautical skill, hardihood, and love of adventure of that worthy, are of extremely common occurrence, and are only restrained by peace, and the general prevalence of lawful authority, from rising into distinction. The reader of the Narrative now before us, cannot fail to be surprised at the number and energy of the English mariners, who, in their industrious pursuits, frequent the stormy shores of the southern extremity of the American continent. Besides, it must be remembered that a bucanier may be successful with a far less stock of seamanship and cool resolution than is required for the execution of a nautical survey in a tempestuous region; for he plays a game of chance; whereas the surveyor adheres deliberately to the most inhospitable shores, and makes himself familiar with dangers that he may teach others to avoid them.

The revolutions which liberated South America from the yoke

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of Spain, and the consequent increase of our trade with Chili, and the other republics bordering on the Pacific Ocean, were probably among the motives which determined the Lords of the Admiralty, in 1825, to order that an accurate survey should be made of the southern coasts of the peninsula of South America, from the southern entrance of the river Plata, round to Chiloe. For this service were equipped, the Adventure of 330 tons burden, and the Beagle of 235 tons, rigged as a barque, and mounting six guns—an admirable little vessel, though belonging to the decried class of gun-brigs. The command of the former vessel and of the expedition was given to Captain Philip Parker King, already distinguished by his survey of New Holland; and Captain Pringle Stokes was appointed to command the Beagle. On the 22d May 1826, the two vessels sailed from Plymouth; and on the 19th November following they left their anchorage at Monte Video, and steered southwards to commence the arduous labours of the survey. It would lead us far beyond our just limits, if we were to attempt to recount chronologically the proceedings of both this expedition and that of Captain Fitzroy which succeeded it. We shall endeavour, therefore, as far as possible, to blend their results together; and shall have recourse to Captain King's journal exclusively, for such preliminary matter only as is required for an introduction to the more copious Narrative of his successor.

The expedition entered the Straits of Magalhaens or Magellan on the 21st December, the midsummer of those regions. The first anchorage of the vessels was at Cape Possession; and a few days later, Port Famine, about forty leagues further in the strait, being reached, seemed to offer so many local advantages, that it was at once selected as the headquarters of the expedition. The mention of these two places necessarily brings to mind the melancholy issue of the attempt made by the Spaniards to colonize and fortify the shores of the Straits of Magalhaens. In 1579, an expedition was dispatched by the Viceroy of Peru, under the command of Pedro de Sarmiento, to pursue Drake, and 'to take the corsair dead or alive.' Sarmiento, thinking it likely that he might find his enemy lurking in the narrow passage through which he had made his way into the Pacific, entered the Straits of Magalhaens by the canal of S. Isidero—probably the Cockburn and Magdalen channels of our recent charts—which channels, there is reason to believe, were navigated by Ladrilleros in 1525. The imagination of Sarmiento appears to have been forcibly impressed by the unexpected luxuriance of vegetation found by him in the strait; at all events, he represented the

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capabilities of the country in so favourable a light, and insisted so strongly on the facility with which the narrows in the strait might be fortified, so as completely to command the communication between the Atlantic and Pacific Oceans, that he at last gained the King of Spain over to his views. Preparations for an expedition to take possession of the Magellanic countries were begun in 1581. Two years later, Sarmiento sailed from Spain with a fleet of twenty-three vessels; but tempest and disaffection so thinned his retinue, that, when he at last entered the straits, in December 1584, he had with him but five ships, and little more than five hundred men. With these he commenced building a town, named Jesus; the site of which, according to Captain King, was between the first and second narrows of the strait; but the old navigators are, we believe, unanimous in supposing Sarmiento's first settlement to have been in the vicinity of Cape Possession; and we confess that, in such a case, tradition appears to us to be a weightier testimony than any appearances of local fitness.

A settlement being thus made near the entrance of the strait, Sarmiento proceeded, with a hundred followers, about forty leagues further south along the shore, to a spot uniting the advantages of wood, water, and a good harbour, where he founded the town of San Felipe. He then embarked, in order to return to the settlement at Jesus; but was driven to sea by a storm, and compelled to shape his course to Rio de Janeiro. From that place he made several unsuccessful attempts to carry succours to the unhappy settlers in the strait; and then, to crown his misfortunes, he was captured by English privateers, while on his way to Spain to solicit aid from the court. In the mean time the wretched colonists were rapidly cut off by privation, disease, and the arrows of the natives. In 1587, the celebrated Cavendish, entering the Strait of Magalhaens, levelled to the ground the town of San Felipe; and, in reference to the fate of its inhabitants, gave to the adjacent harbour the name, which it still bears, of Port Famine. He took on board but one of the surviving remnant of Sarmiento's followers, thus cruelly deceiving the hopes of relief which had swelled the bosoms of all when his ships were first descried at a distance. The last of their number was rescued two years afterwards by Andrew Mericke.

This history of Sarmiento's enterprise gives rise to some curious reflections. It is extraordinary that, so late as 1582, the court of Spain should have been led to the practical adoption of the belief that the Straits of Magalhaens, in some places but a league and a-half wide, afforded the only navigable communica-

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tion between the Atlantic Ocean and the great South Sea. It is true that the passage by Cape Horn was not at that time discovered; but neither was there a single circumstance in the then state of geographical knowledge calculated to establish the opinion that Tierra del Fuego extended, without interruption, to the South Pole. When Magalhaens passed through the strait which bears his name, he took it for granted that the country on his right hand, or towards the north, was the mainland of America; and, as to the country on his left, he concluded it was an island, because the noise of the ocean beyond it was sometimes audible. This observation certainly referred to the western portion of the strait, but it was expressed without limitation, and conveyed, at the least, a very broad hint of the truth. Sir Francis Drake, after sailing through the strait, was driven far to the south by a gale, and found shelter not far from Cape Horn. He saw no land, but an open sea to the south of him. Again, a captain of Loyasa's fleet, in 1525, saw the end of the land, as he termed it, on the south-eastern side of Tierra del Fuego. Many other particulars might be adduced in proof of the assertion that the attempt to cut off all intercourse between Europe and the Pacific Ocean, by fortifying the strait of Magalhaens, is to be ascribed altogether to the wrongheadedness of the court of Spain; and must not be taken as an indication of the state of geographical knowledge at that time.

Thirty years after this lamentable expedition, an opulent and well-informed Dutch merchant, Isaac le Maire, equipped two ships for the express purpose of sailing through the open sea round the southern termination of the new world. His views were realized, and the southern Cape, lashed by the waves of a restless ocean, took the name of the village of Horn, on the Zuyder Zee. This discovery again roused the jealousy of Spain; and, in 1618, the Nodales were dispatched to circumnavigate Tierra del Fuego. To this effort, however, succeeded a long period of inaction, and it was not till the English Jesuit, Falkner, published, in 1774, his account of Patagonia, in which he dwelt on the advantages derivable from the occupation of that country, that the Spanish government again shook off its lethargy, and sent Don Antonio de Cordova to survey the Magellanic shores, —a commission which that officer executed with much ability.

While the Beagle, carrying on the survey westward, was lying in Port Gallant, one of the officers ascended the neighbouring mountain, De la Cruz, and found on its summit the remains of a glass bottle, a Spanish coin, and a roll of papers; which proved to be the memorials left by Don Antonio, together with a copy of a document previously deposited there by M. de Bougainville.

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There is something extremely touching in those simple memorials of eminent navigators, whose noiseless discoveries exert a more permanent, and certainly far more beneficial, influence on the destinies of the human race, than the most brilliant victories. In their anxiety to leave on the shores explored by them some memorial of what they have done, it is easy to discern a union of the opposite feelings which dictate the inscription of a trophy and that of an epitaph.

While the ships remained in the strait, a tolerably constant intercourse was maintained with the small tribe of Patagonians, who, to the number of two hundred, wandered along the shore from Cape Virgin to Port Famine. The Patagonians, whom some travellers have magnified into giants, are really somewhat larger than Europeans. With an average height rather exceeding six feet, they have very broad shoulders and a large head, the ample dimensions of which are set off by a quantity of long matted hair hanging in the wildest disorder over their faces. Falkner, who lived many years among the Patagonians, says that he never saw one of them who was above an inch or two taller than the Cacique Cangapol; and 'he,' observes the Jesuit, 'must have been seven feet and some inches in height, because 'on tiptoe I could not reach to the top of his head.' The exaggerations of those who have represented the Patagonians as a race of giants, eight feet in height, and with the voice of bulls; are, after all, less embarrassing than the silence of others respecting the superior stature of the natives inhabiting the northern shores of the Strait of Magalhaens. But it must be observed that these people are great wanderers, roving over an immense extent of desert plains. The same tribe which was found by the officers of the Beagle on the shores of the strait, was seen a year after on the banks of the Rio Negro, eight hundred miles further north. It is probable, also, that the various tribes differ in robustness according to the abundance of their food; and, indeed, Falkner points out the distinction between the large-bodied and the small Huilliches. This circumstance, added to their nomadic habits, will serve to explain why it has not been the lot of every visiter to the Magellanic shores, to see natives with the Herculean proportions of Cangapol.

Nearly every Patagonian, now-a-days, is a horseman. The countless droves of horses which, since the arrival of the Spaniards, have spread over the pampas of South America, have, probably, caused important changes in the original habits of the natives. The Indians occupying the southern pampas, at the commencement of the sixteenth century, were, in some degree, prepared to avail themselves of the services of the horse, by their practice of domesticating the guanaco, derived probably from

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the Peruvians. When Magalhaens was in Port Julian, he saw a Patagonian leading a tame guanaco with a halter round its neck; and later accounts inform us that they domesticated those animals, and kept large herds of them near their dwellings. The arms of the Patagonian, in the sixteenth century, were the bow and arrow, and light spear. He now entangles his prey with the laço or noose, and with the bolas or tied balls, as dexterously as the Indian of the northern pampas. Provided with the horse, and the weapons of his northern neighbours, the Patagonian has found the chase grow more productive; he has abandoned pastoral cares, and acquired nomadic, easily degenerating into predatory habits. If these views be correct, he has been a loser by the acquisition of the horse; for that, by relieving him from dependence on, and weaning him from any attachment to the soil, has lessened his tendency to civilisation.

The Patagonians, seen by the officers of the Adventure and Beagle in the strait, carried with them, in general, some evidence of the extent of their travels. One young chief rode a horse handsomely caparisoned, after the fashion of the Gauchos, or peasants of Buenos Ayres. A woman, named Maria, who seemed to exercise some authority over her countrymen, spoke a little Spanish. Her brother, a cacique, dwelling on the Rio Negro, was, as she related, an important personage, respected both for his gigantic size and his riches; which consisted of horses, hides, and furs of various kinds. Under kind treatment they were found to be extremely tractable and willing to oblige. Fearless and without mistrust, they betrayed in their avowed love of intoxication alone, the uncontrolled passions of the barbarian.

Captain Stokes, in the Beagle, ran along the western side of Patagonia, and, though constantly thwarted in his operations by tempestuous weather, he succeeded in making a correct outline of that intricate coast. In port Santa Barbara, he found imbedded in the sand a beam of a large ship, and concluded it, for good reasons, to be a remnant of the Wager, one of Lord Anson's fleet, the loss of which, and subsequent sufferings of the crew, are so well described by Byron and Bulkeley. Being opposed himself by the same warring elements, this memorial of their fatal wrath was little calculated to comfort, or to cheer him. Surrounded by dangers, and rendered doubly anxious by his zealous desire to execute the task intrusted to him, his spirits at length sank under the load of care. He grew listless and dejected, and in a few days after his return to Port Famine, in August 1828, he put an end to his life. At the time when this melancholy event took place, the crews of both vessels, but particularly of the Adventure, were suffering from scurvy. This terrible disease, brought on by the gloom and severity of the climate,

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could not be checked in its progress by the abundance of fresh meat supplied by the natives, or of wild celery found along the shores. As its inroads, under depressing circumstances, might quickly become fatal, Captain King determined at once to quit the straits of Magalhaens, and to repair to Rio de Janeiro. At that port Captain Fitzroy was appointed to command the Beagle; and, the ships being repaired and their crews restored to health, they returned to the strait in the beginning of the following year.

Among the events of this period of the survey, one of the most interesting was the discovery of the great lakes called Otway and Skyring waters, situated on the northern side of the strait, in the angle made by its bend to the south; and looking like unfinished short-cuts between the opposite seas. In May 1829, Captain Fitzroy, while exploring the Jerome Channel, unexpectedly arrived at a great expanse of water, about forty miles long from south-west to north-east, and twenty miles in width. Near its northern limit, he found a navigable channel about a mile wide, which, being followed for a dozen miles, led him into another lake, only ten or twelve miles wide, but stretching westward beyond the reach of the human eye. The first of these lakes was named Otway, the second Skyring water. Unfavourable weather forbad the complete examination of their shores, but, from an eminence, it was seen that low land and a chain of lagoons intervene between the strait of Magalhaens and the eastern end of Otway water—their nearest shores being hardly ten miles asunder. Skyring water, it was subsequently discovered, is separated from the ocean, at its western extremity, by a barrier of mountains and glaciers hardly five miles broad. These lakes border on the limits of the two distinct climates of Patagonia and Tierra del Fuego. On their north-eastern side were clear skies, grassy plains, and plants like those characteristic of the eastern coasts. In the opposite direction, they were encompassed by snowy mountains, glaciers, and gloomy forests. To a country possessing industry and civilisation, such an extent of inland navigable waters would be an inestimable advantage. In Patagonia they seem doomed to remain for a long time useless. We are far, however, from being disposed to admit that the Magellanic regions are condemned, by asperity of climate, to be the seat of perpetual barbarism. The arts of civilized man render him superior to climate; and the same energy and ingenuity which enable him to live comfortably in Iceland, or Hudson's Bay, might certainly provide him with luxuries in the strait of Magalhaens.

While the Beagle was employed in surveying the southern coast of Tierra del Fuego, an adventure occurred which was ulti-

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mately attended with very interesting consequences. The master was sent, in a fine whale-boat, from London island, where the vessel lay, to examine the channels to the east. His absence, unexpectedly prolonged, gave rise to much uneasiness on his account, when tidings arrived from him in a singular manner. The natives, it appears, had secretly watched his motions, and carried off the whale-boat in the dead of night, while the men were sleeping close by it on the shore. The party had lost, with their boat, two-thirds of their provisions, and were in hourly dread of being attacked by the natives. No time was to be lost in making known their situation to their friends. For this purpose, two of the men made a canoe of twigs, in shape and structure like a basket; inside lined with clay, and covered with bark outside. In this frail vessel they embarked, and, after paddling tediously for five-and-twenty hours, they succeeded in reaching the Beagle. Measures were promptly taken to rescue the crew of the stolen boat, and to pursue the thieves. The chase, though continued for several days, was rendered fruitless by the broken nature of the coast, and the superior local knowledge of the fugitives. At last some of the natives were seized, and given to understand that they should be kept prisoners until the boat was restored. Those on shore, however, showed no disposition to ransom their friends at so high a price; and the prisoners nearly all contrived to escape by jumping overboard and swimming ashore. Thus the only hostages remaining with Captain Fitzroy were a little girl eight years of age, named, from the adventure of the canoe above described, 'Fuegia Basket,' and a lad of nineteen called 'Boat Memory.' To these were subsequently added a young man of five-and-twenty, taken on board near the promontory of York Minster, from which he was named; and a boy called, from the price paid for him, 'Jemmy Button.'

These four Fuegians (for thus we find designated the natives of Tierra del Fuego) arrived safely in England, when the Adventure and Beagle returned from their survey in the autumn of 1830. They were placed, on their first arrival, in the Royal Hospital at Plymouth, there to await the first onset of European diseases; but, notwithstanding the friendly care which watched over them all, 'Boat Memory' died of the smallpox. The others passed safely through the ordeal; and were then placed by Captain Fitzroy at Walthamstow, near London, in order that they might receive some education. The object which he had in view was, to qualify them to act as interpreters by acquiring the English language; to impress their minds with the superior advantages of civilisation, and to gain them by benefits; so that, when restored to their own country, they might become instrumental in the improvement of their countrymen, and in the establishment of

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a friendly intercourse between the latter and Europeans. These poor strangers were the objects of much kind attention; they conversed with his late Majesty, received presents from the hands of Queen Adelaide, and insensibly grew rich by the liberality of their friends. Nevertheless, though daily gratified with the sight of new wonders, they still sighed for home; and their generous patron, Captain Fitzroy, had actually engaged a vessel to take them back to their native land, when, most opportunely, the Beagle was re-commissioned, and he was appointed as commander, to resume the survey of Tierra del Fuego and the Patagonian shores.

There is no department of the public service in which this country has of late years been more fortunate than the hydrographical. To say nothing of the North Sea, or of our own shores, or of those of the Levant, we have seen, within a comparatively short period, the whole coasts of Africa, of New Holland, and three-fourths of the coasts of America, including Newfoundland, carefully surveyed by officers of the Navy;—in some parts repeatedly, and always with increasing accuracy. All this is effected with no greater expenditure than is absolutely required to maintain a good School of Seamanship for the Navy; for it is obvious, from the nature and objects of nautical surveying, that that service is the best possible school of practical seamanship. Nor is the activity of the Hydrographical Office its only, or its distinguishing merit; it may boast still more justly of the judicious direction and trustworthy character of its labours. We are led to make these remarks by perusing the hydrographical memorandum annexed to the instructions furnished to Captain Fitzroy, preparatory to his second expedition. That document, remarkable both for its perspicuity and comprehensiveness, is dictated throughout in a spirit calculated to 'scatter the rear of darkness.' After a caution against the old error of resting satisfied with a running view of the shore, it goes on to say,—

'Of this kind of half-knowledge we have had too much; the present state of science, which affords such ample means, seems to demand that whatever is now done, should be finally done; and that coasts which are constantly visited by English vessels, should no longer have the motley appearance of alternate error nd accuracy.'

Besides completing ana ratifying the charts of the southern portion of the American continent, Captain Fitzroy was enjoined to measure a series of distances, in longitude, by chronometers (with which the Beagle was unusually well provided)—to survey some good harbour in the Falkland Islands—to examine the formation of the Coral Islands in the Pacific—to study the tides, and to make a variety of observations tending to improve the art of

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navigation. Captain Fitzroy, actuated by a spirit like that which had originated the expedition, wished for a scientific companion, whose knowledge of the various departments of natural history might turn to the best advantage the opportunities afforded by a voyage of long continuance, and through various regions of the globe. His wish was no sooner known, than he met with a most efficient volunteer in the person of Mr Darwin.

Near the close of December 1831, the Beagle again put to sea. 'Never,' says Captain Fitzroy, 'did a vessel leave Eng- 'land better provided or fitted for the service she was destined to 'perform, and for the health and comfort of her crew, than the 'Beagle.' The necessity of touching at several places in the passage across the Atlantic, for the sake of rating the chronometers, and the curiosity of the naturalist, soon accumulated an interesting mass of observations. But our narrow limits warn us to hasten to the chief scene of action. Between the La Plata and the Rio Colorado, is a low, or, as Captain Fitzroy styles it, a half-drowned coast, extremely dangerous, but still affording some excellent harbours. With the examination of these dangers and places of refuge, began the work of the survey. At the head of Port Belgrano, one of these harbours, is a creek, stretching for miles between mud banks and high reeds, till its explorer at last finds himself in the heart of the pampas, amidst droves of wild horses, and near a Spanish guardia, or military post; the officers of which, surrounded by fierce-looking gauchos, were filled with consternation on finding that the boats of an English man-of-war could penetrate to their solitudes. One day, while the vessel was about three leagues distant from the coast, off the bay of San Blas, a north-west breeze springing up, suddenly filled the air with clouds of butterflies, extending a mile in width, and several miles in length. Hence it may be conjectured how prolific of life are the apparently desert pampas, and to what waste their productiveness is exposed.

The joy of the Fuegians knew no bounds as they approached their native soil; they were loud in its praise, and indulged in anticipations of the delight with which their return would be hailed by their friends. Nevertheless, when a party of robust natives made their appearance in Good Success Bay, hideously painted and smeared with clay, 'York' and 'Jemmy' refused to acknowledge them as countrymen; and would not even acknowledge any acquaintance with their language. The painful recognition of visible barbarism, after having been so long disused to it, probably mingled in this instance with their old hostility to the eastern tribes. 'Jemmy Button's' home, at a place called Woollya on Navarin island, being furthest east, was first reached;

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it was found to be an agreeable and apparently fertile spot, with green slopes and rivulets in the foreground; hills and forests at a little distance. Here, then, was to be planted the seed of civilisation for the first time in Tierra del Fuego. 'York Minster' having taken to wife 'Fuegia Basket'—the Fuegian ladies, we presume, all marry at an early age—had made up his mind, for reasons which the sequel will explain, to settle in the same place with 'Jemmy Button.' But there was another settler who must have landed at Woollya, with feelings very different from those of York and Jemmy; for what can be more different than the feelings of the barbarian about to display to his fellows the benefits with which civilisation has clothed him; and those of the civilized man voluntarily descending to herd with savages? A young man named Matthew had been selected by the Church Missionary Society to accompany the Fuegians, in order that, aided by their influence, he might, if circumstances appeared favourable for the experiment, attempt to introduce into their country the blessings of Christianity. Wigwams were erected, and the property of the Fuegians, consisting of clothes, porcelain, tools, and utensils of various kinds, was conveyed on shore: for greater safety, a portion of it was buried under the newly erected habitations. The natives, from all sides, gathered round, to gratify their curiosity and pilfer what they could. But Jemmy's relations had not yet made their appearance. At length a deep voice was heard hailing from a canoe a mile distant; Jemmy starting up, exclaimed, My brother! The canoe touched the shore, and Jemmy ran to meet his relatives; but his mother scarcely deigned to look at him, so busy was she with her canoe, her skins, and fire-stones; his sisters ran away; and his brother, after staring at him for some time with little show of friendly emotion, uttered some sentences which poor Jemmy was unable to comprehend. Thus the slight tincture of civilisation imbibed by the young Fuegian, appears to have expanded his affections beyond the compass to which his fellows could respond; and to have unfitted his mind for the narrowness of the Fuegian vocabulary; for he seems to have lost irrecoverably the purity—if we may so speak—of his native language.

As the natives seemed peaceably disposed, and Mr Matthew did not shrink from his undertaking, Captain Fitzroy felt himself at liberty to withdraw for a time; and to leave the parties to themselves while he completed the survey of the Beagle channel. The discovery of this strait by the master of the Beagle, deserves to rank amongst the most interesting results of the previous expedition. The Beagle channel is a strait about two miles in width, intersecting the southern portion of Tierra del Fuego, and extending

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a hundred and twenty miles in length from east to west, with little sinuosity. It resembles, on a great scale, the glen of Lochness in Scotland; and Mr Darwin, ever mindful of the agencies which model the surface of the globe, remarks, that 'at some future 'epoch the resemblance will perhaps become more complete; al- 'ready, in one part, we have proofs of a rising of the land in a line 'of cliff or terrace, composed of coarse sandstone, mud, and shingle, 'which forms both shores.' The channel is confined by high land on both sides, but on the northern side, the mountains rise in an unbroken sweep from the water's edge to an elevation of 3000 feet; terminating in jagged points, and covered to the height of fifteen hundred feet by dusky-coloured forests. The strait divides, near its western termination, into two arms, and the scenery becomes more grand. Mountains, nearly 7000 feet in height, tower above the northern branch, covered with perpetual snow, and pour down numerous cascades through the woods into the narrow channel below.

On returning to Woollya, Captain Fitzroy found that the experiment of a mission had been already carried far enough. It does not appear that the natives had offered any violence to Mr Matthew; but their extreme rudeness and constant craving for presents allowed him no rest, and filled him with the gloomiest apprehensions. As he could not be always a dispenser of gifts, and had little chance of being able to assume among them the character of an instructor, he prudently, and, we need hardly add, very joyfully re-embarked. Kindness and compassion, according to his testimony, characterise the female heart, even in Tierra del Fuego. As often as, driven from his own dwelling by the persecutions of the men, he sought shelter in a native wigwam, the women were sure to share their food with him and protect him from insult. 'Jemmy Button' was soon despoiled of nearly all his property by his friends and relations. 'York Minster' being a strong man, and of a close disposition, lost nothing. 'Fuegia Basket' seemed to be the favourite of all, and by general consent to be exempted from molestation of any kind.

More than a year elapsed after the three young Fuegians were put ashore at Woollya, before that spot was revisited by the Beagle. The habitations were then found deserted, and apprehensions were felt for the safety of their owners; but these were soon dispelled by the appearance of a canoe, in which was Jemmy himself—*sed quantum mutatus ab illo*—no longer sleek and well clothed, but naked like his savage companions, with only a small skin round his loins, his hair long and matted, and his whole appearance squalid and miserable. It was gratifying, however, to observe that he had lost only the outward orna-

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ments of his person, and still preserved the more estimable of the gifts bestowed on him. His knowledge of the English language, his decent manners, and his grateful sense of past benefits, had suffered no deterioration. He had prepared a fine otter-skin for Captain Fitzroy, and other presents for his friends in England. He was in good health and contented with his lot. The desertion of Woollya was occasioned by the appearance of some of the hostile tribes from the north-east: an island at a little distance, now named in the charts Button Island, offered the fugitives a secure retreat. 'York Minster' had long meditated returning to his own country further west; and for that purpose he had laboured incessantly at the construction of a large canoe, like one which he had seen at Rio de Janeiro. This being completed, he persuaded Jemmy to accompany him with all his clothes and other property. They proceeded westward along the Beagle channel till they met 'York Minster's' tribe; when Jemmy falling asleep in his canoe, the others stripped him of all that he possessed and disappeared. It is not quite certain that this act of dishonesty was premeditated on the part of 'York Minster;' and where there is the shadow of a doubt we gladly give him the advantage of it. He was a mature savage when brought to England, and it could not be expected that his dispositions would be materially changed. But with respect to his two companions, we are fain to believe that in their hearts or habits was wrought a permanent improvement, directly conducive to the benevolent ends which Captain Fitzroy had in view. 'Fuegia' continued to the last to be well clothed and cleanly—a proof that she was not disposed, and that the naked wretches about her had too much respect for her to compel her, to relapse to barbarous habits. Respecting 'Jemmy Button,' Captain Fitzroy says,—

'It was generally remarked that his family were become considerably more humanized than any savages we had seen in Tierra del Fuego; that they put confidence in us; were pleased by our return; that they were ready to do what we could explain to be for their interest; and in short, that the first step towards civilisation—that of gaining their confidence—was undoubtedly made; but an individual with limited means, could not then go further. The whole scheme with respect to establishing a missionary with the Fuegians who were in England, was on too small a scale. I cannot help still hoping that some benefit, however slight, may result from the intercourse of these people, Jemmy, York, and Fuegia, with other natives of Tierra del Fuego. Perhaps a shipwrecked seaman may hereafter receive help and kind treatment from Jemmy Button's children; prompted, as they can hardly fail to be, by the traditions they will have heard of men of other lands; and by an idea, however faint, of their duty to God as well as their neighbour.'—II. p. 326.

Before we quite the strait of Magalhaens and Tierra del

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Fuego, we shall cast our eye over the whole of that region, and endeavour to describe, as briefly as possible, the nature of the country and the character of its inhabitants. Tierra del Fuego, or the land of fire, so called by Magalhaens from the number of fires he saw blazing on the hills—the signals of the natives—but of the nature of which he was ignorant, is a mountainous land, intersected by numerous arms of the sea. Its rugged aspect and subdivision into islands, increases towards the west and south. The shores of the strait of Magalhaens, for nearly one hundred miles from its eastern entrance, have an exceedingly bleak and sterile appearance; presenting, like the plains of Patagonia, little besides bare shingle, with here and there a tuft of vegetation. Beyond this sterile tract the strait bends to the south, and then its western shore is covered with a luxuriant vegetation: thick woods of beech and winter's-bark clothe the sides of the hills, and descend to the water's edge. Sixty miles further on, where the strait turns to the north-west, it appears like a narrow canal hewn through immense mountains. The continuation of the Cordillera of the Andes here winds a little to the east before it reaches its termination. South of the straits, between the Magdalen and Beagle channels, the mountains attain an elevation of nearly 7000 feet, covered with perpetual snow. Snowy peaks, clear-blue glaciers, and numerous cascades are seen on all sides, gleaming through dusky masses of impenetrable forest. If the humid tempestuous climate did not counteract the pleasurable impressions produced by the scenery, no country could be thought to vie in grandeur with the western part of Tierra del Fuego.

The forest trees in the central parts of the straits of Magalhaens attain a considerable size. The larger kind of evergreen beech (*Fagus betuloides*) is often found of four or five feet in diameter. A thick underwood, composed of a species of arbutus, berberries, and wild-currant, fill up the intervals between the larger trees; a fuchsia also, and a veronica, but particularly the latter, grow with extraordinary luxuriance, even in the most exposed situations. The sight of such rich productions in a climate which feels like perpetual winter, fills the stranger with surprise. But paroquets, too, inhabit these woods; and humming-birds flutter in the sheltered coves. Thus the forms of the feathered species, characteristic of the Tropics, here extend to the confines of a polar climate. This fact (and a similar remark applies to the inhabitants of the deep) is ascribed by Mr Darwin to the equable temperature of the year, though with a low mean, produced by the constant storms of wind. This equability must exert, no doubt, a considerable influence in regard to the character of the animal kingdom; but we think that the chief cause of the extension of

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tropical forms to Tierra del Fuego, must be sought in the shape and direction of the American continent and the Cordillera of the Andes, with its parallel lines of local climate, extending continuously, with imperceptible changes, from the tropics to a high latitude.

South of the straits of Magalhaens, the line of perpetual snow is at an elevation of 3500 or 4000 feet above the sea. The woods extend with great uniformity to an elevation of 1500 feet; between them and the snow lies a band of peat, with minute alpine plants. There is but little level land in the whole country, and the surface is every where covered by a thick and swampy bed of peat. Even within the forest, the ground is concealed by a slowly putrefying mass of vegetable matter, which, from being soaked with water, yields to the foot. 'The entangled mass of the thriving 'and fallen trees,' says Mr Darwin, 'reminded me of the forests 'within the tropics; yet there was a difference; for in these still 'solitudes, Death, instead of Life, seemed the predominant 'spirit.'

The inhabitants of Tierra del Fuego have but little temptation to cultivate the soil; their solid and habitable land is reduced to the stony beach on which they wander in quest of food; and, owing to the steepness of the coast, they can only move about in their canoes. These are made of branches intertwined and covered with bark; and, though small and frail, the natives are not afraid to venture in them to a considerable distance from the shore, and even to hoist a sail of sealskin. The canoe is plastered inside with clay, and in the middle of it a fire is kept burning; yet the Fuegian, in this case attentive to his comfort, appears in general insensible to cold. The women dive for sea-eggs in winter as well as summer; a small skin thrown over the shoulders or round the loins, constitutes the whole clothing of either sex; and their naked limbs are protected from the sharp winds only by being smeared with clay. Their shores supply them with seals and various kinds of shellfish; with their slings and arrows they are able to kill seafowl even on the wing. In the art of fishing they appear to have made little progress. An old voyager relates, that on his hauling a net about eighty feet long in the strait of Magalhaens, the natives, previously on friendly terms with him, grew so incensed at the great quantity of fish thus taken at once, that they immediately commenced an assault on him with stones. Notwithstanding the fecundity of their shores, it appears certain that famine often drives them to the worst extremities. In severe winters, when pressed by hunger, they sacrifice the oldest women of their party—holding the head of the sufferer over a fire

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made of greenwood, to produce suffocation. They also eat their prisoners taken in war. These habits of cannibalism, there is reason to believe, extend north-westward among the insular tribes as far as the Chonos archipelago.

There is no want of good harbours, affording plenty of good water and fuel in the straits of Magalhaens or on the southern shores of Tierra del Fuego. It was well enforced in the Hydrographers' Memorandum, that 'the more inhospitable the region, the more 'valuable is a known port of refuge;' and the principle thus inculcated has been fully carried into practice by Captains King and Fitzroy. Henceforth the terrors of Cape Horn and of the Straits will rapidly disappear; and perhaps the land, too, will begin to assume a less dismal character; for how unjustly should we estimate the climate of the British isles, if we knew it only from the accounts of vexed seamen, tossed in the jaws of St George's Channel? The great violence and complexity of the tides in the strait, have hitherto conduced much to the danger of its navigation; but these are now understood, and the mariner is taught how to avoid or how to turn them to his advantage. We need not dwell on the lamentations of Byron, Wallis, or Cordova; nor on the heavy losses sustained by early voyagers while struggling for three or four months together to pass through the straits. The passage of the straits, in times of hydrographical ignorance, was a work of chance; and of course there were not wanting instances of good fortune. Thus Magalhaens, who groped his way with extreme caution, reached the Pacific ocean in three weeks. Sir Francis Drake effected his passage in seventeen days; but we have a still stronger case to prove that fair as well as foul winds blow over those troubled seas. In the year 1690, the privateer Welfare entered the strait of Magalhaens on the 10th February, and did not reach the Pacific till the 21st May following; this detention of three months and twelve days being occasioned by constant adverse winds in the western part of the strait. Had the passage by the Magdalen channel been known to the Captain of that vessel, he might probably have got clear with little trouble. But this same ship, on her return, entered the strait from the west on the 5th December and cleared it on the 12th; thus effecting the passage in seven days, during four of which she lay at anchor at Bachelor's River to procure wood and water. As so rapid a passage through the strait of Magalhaens is, we believe, without another example, we have carefully examined the Journal of the Welfare's voyage (an unpublished document, which is highly creditable to the nautical ability of its age), and find that that ship was under sail only sixty-eight hours from the time

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when she came abreast of Cape Victory at the western entrance of the strait, till she had cleared the narrows and bore away into the Atlantic. This instance of a favourable voyage through the strait, encourages us to answer affirmatively Captain Fitzroy's interrogation—"Would not steam navigation answer well in those narrow seas, offering numerous good harbours and abundance of fuel?" When we consider the activity with which British steam-vessels now ply along the eastern, and their contemplated establishment on the western coasts of South America, it appears to us by no means unlikely, that erelong the fisheries of the Magellanic seas may be carried on, and the communication between the opposite oceans facilitated, by steam-ships.

In the Hydrographical Memorandum annexed to Captain Fitzroy's instructions, and to which we have already more than once referred, it is remarked that 'The name stamped upon a place 'by the first discoverer should be held sacred by the common 'consent of all nations; and, in new discoveries, it would be 'beneficial to make the name convey some idea of the nature of 'the place.' A rigorous adherence to this precept would require a more minute and critical acquaintance with the discoveries of the early navigators, than is always attainable by officers engaged in active service. We therefore readily overlook the violation of it in minor instances, and shall point out only one or two of those omissions or misnomers in Captain Fitzroy's charts, which appear to us to require emendation. The names imposed by Magalhaens throughout the strait discovered by him, ought, above all, to remain inviolate. Now, on his issuing from the strait, he gave to the headland on the left, the name of Cabo Deseado, or Cape Wished-for—a very significant name under the circumstances. Cabo Deseado had a rock in front, resembling, as later navigators inform us, one of the Needles at the Isle of Wight; it was obviously, therefore, the same headland which was subsequently named Cape Pilares. But this latter name has been allowed, in the recent charts, to supplant that fixed on the place by Magalhaens; and the title of Deseado has been transferred to a cape situated twenty miles south by east from the mouth of the strait—a cape which Magalhaens never saw, and no seaman ever desired to see. If it be true that Sir Francis Drake, who named Elizabeth Island in the strait, gave at the same time the names of St Bartholomew and St George to the islands now called S. Magdalena and S. Martha, the former names ought to be restored. This, however, is a point on which we lay no stress; but we must strongly protest against the expelling from the charts of the classical name of *Setebos*, affixed by Nodal (for there is no mistaking what he means by

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Setabence) to one of the western points (probably Cape Anthony) of Staatenland. Setebos, too, has the claims of a native appellation, being that of a Patagonian demon, if we may believe Pigafetta, from whom Shakspeare learned the name.

In February 1833, the Beagle entered Berkeley Sound in the Falkland Islands. 'The aspect of these islands,' says Captain Fitzroy, 'rather surprised me; instead of a low, level, barren 'country, like Patagonia, or a high woody region, like Tierra 'del Fuego, we saw ridges of rocky hills, about a thousand feet 'in height, traversing extensive tracts of sombre-looking moor- 'land, unenlivened by a tree.' Bleak and uninviting as those islands appear, they were for a long time a bone of contention among nations. They were discovered in 1592 by John Davis; and, for nearly a century after, were known by the name of Hawkins's Maiden-land. Their present name was given to them by Captain Strong, who, in 1690, passed through the channel separating the two islands. Even then it was remarked, that, 'if the land were not wholly destitute of wood, it would make a 'noble plantation. It bears an English name, good herbage, 'and a great variety of land and sea fowl.' Its merits, however, remained long unheeded, until spurred by jealousy, Spain, France, and England, nearly about the same time (immediately subsequent to 1766), made settlements on the eastern island. But these profitless colonies were soon abandoned. The claims to the Falkland Islands, made in 1820, by the republic of Buenos Ayres, had an unfortunate conclusion. A settler on the island, named Vernet, in exercising the authority which he derived, as he conceived, from the republic, incurred the displeasure of Captain Silas Duncan, of the United States' frigate the Lexington, who totally destroyed the settlement, and forcibly carried off M. Vernet from the island Hereupon, the British government, which had formally protested against the claims of Buenos Ayres, ordered the British flag to be re-hoisted; and since 1834, an officer, invested with the necessary authority, has resided on the island.

The attempts made to colonize the eastern Falkland Island produced the good effect of stocking it. Great herds of black cattle, pigs, and droves of horses, now roam over its abundant pastures. The pigs and horses have been but little molested; but the cattle, which are said to be superior to those of the pampas of Buenos Ayres, were slaughtered in the most wasteful manner by the gauchos, or peasants (chiefly convicts), from the opposite mainland, previous to the establishment among them of the British rule. The coasts abound in fish; there is no want of peat and other fuel; potatoes and other vegetables thrive

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well; and even wheat sometimes ripens. With these capabilities, and with herds of fine cattle, it is evident that the Falkland Islands are well able to support an industrious colony. Captain Fitzroy thinks that they offer an eligible situation for a penal settlement; but, in this respect, perhaps Staatenland or Tierra del Fuego is still preferable. There the climate would supply the place of bars, bolts, and fetters. A warm roof would keep the wild spirits together without the aid of sentinels. There can be no greater mistake than to establish a Penal Colony in a temperate climate, where the life of a bushranger promises so much pleasure; and even in the Falkland Islands, where the weather is commonly boisterous and chilly, the gauchos can sleep in the open air. On the other hand, there cannot be a monitor more peremptory and effectual, and at the same time less injurious to the moral feelings, than the absolute necessity of providing for personal comfort.

When the Beagle, touching on the coasts of Patagonia in April 1834, anchored in the mouth of the river Santa Cruz, Captain Fitzroy resolved to explore that fine stream towards its sources. The rapidity of the river made the undertaking extremely difficult; oars were of no avail, and the men were obliged to haul the boats along with ropes. Still, they persevered till they had advanced about 180 miles from the sea, and had the Andes full in view. Their provisions being then nearly consumed, and the monotony of the country promising little to reward their toils, they retraced their steps; the nearest waters of the Pacific being, it was calculated, about eighty miles distant. The river diminished little as it was ascended; being generally from three to four hundred yards broad, and of a depth of seventeen feet in the middle. Its waters were of a fine blue colour, and flowed with the remarkable rapidity of from four to six knots an hour throughout its whole course. Of its valley Mr Darwin says, 'If I had space, I could prove that South America was 'formerly here cut off by a strait, joining the Atlantic and 'Pacific oceans, like that of Magellan.' The herds of guanacoes followed by the puma; the ostriches inhabiting, and the condors soaring over those sterile plains of coarse shingle, do not here call for notice. Mr Darwin's account of the origin of those plains is better worth attention.

'In Europe,' he observes, 'deposits of the more recent eras have generally been accumulated in small basins or trough-shaped hollows. In South America, however, the entire plains of Patagonia, extending seven hundred miles in length, and backed, on the one hand, by the chain of the Andes, and fronted, on the other, by the shores of the Atlantic, are thus constituted. Moreover, the northern boundary is merely

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assumed in consequence of a mineralogical change in the strata; if organic remains were present, it would probably be found to be only an artificial limit. Again, to the northward (1300 miles distant from the Straits of Magellan) we have the pampas' deposit, which, though very different in composition, belongs to the same epoch with the superficial covering of the plains of Patagonia.'—III. p. 201.

According to Mr Darwin's theory, the whole of the South American continent, within the limits above alluded to at least, has been raised from the bed of the ocean within a very recent period—that is to say, recent in a geological sense. The mingled clay and marl which form the soil of the pampas, he regards as the muddy accumulations or deposit of an immense estuary, of which the wide but shallow La Plata now remains the diminutive image. Further south in Patagonia, no fresh waters, flowing slowly, have overspread the wide valleys or plains with a fertile sediment. Of the plains of Patagonia, each portion in succession, from the Cordillera downwards to the Atlantic, was once the sea-beach. The waves threw upon it the rough shingle, the materials of which had fallen from the Cordillera—a whitish sediment alone interposing between the stones and the accumulated sand beneath. As the sea slowly retired, or rather as the land rose, the waves still marked the furthest limits of their influence by a line of shingle; so that, while the process of the elevation of the land was equable, the result was the gradual formation of a uniformly sloping bed of shingle. But that the equable rising of the land was often interrupted by periods of repose, during which the waters corroded the shores so as to form cliffs, is evident from the circumstance, that the Patagonian plains exhibit six or seven terraces of exactly the same structure and materials, but of different heights; and these several heights, which mark so many periods of uniform action of the waters, recurring at distances of six or seven hundred miles asunder, prove the wide extent of the subterranean forces which regulated the rising of the shores. For about a hundred miles from the Cordillera, the plains bordering on the river Santa Cruz were covered with an immense stream of lava—increasing in depth towards the mountains, where a section of it would probably not fall short of three thousand feet. We may add, that the sand, shingle, and marine shells, extend a long way northward between the Pampas and the Cordillera, in the latitude of Conception. The same tract is also thickly strewed with volcanic ashes.

The shingle of the lower terrace of the Patagonian plains is strewed with shells of species now common in the neighbouring seas; but in the sandy substratum are imbedded the shells of extinct species, including an oyster of extraordinary size. In

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the gravel, also, Mr Darwin discovered the bones of an extinct Llama, which must have been fully as large as the Camel. America, in past ages, like Africa at the present day, nourished many species of animals of great size; but these have perished unaccountably, and lie buried in vast quantities in the alluvial soil of the pampas. Remains of the megatherium; of an immense mastodon; of the toxodon, an extraordinary animal as large as a hippopotamus; and of other creatures as yet nameless, have been collected by Mr Darwin, and will be explained by him in a work now in course of publication.

The western side of the southern part of the South American continent, presents the strongest possible contrast with the eastern. The open dry plains of Patagonia, enjoy clear skies throughout the year, and in summer are scorchingly hot. But beyond the mountains which bound them on the west, the scene is totally changed. The narrow strip of western coast is broken by numerous inlets, which penetrate quite through the Cordillera; here attaining a height of seven thousand feet. The ramifications of these inlets terminate in immense glaciers, one of which was found to have an extent of twenty-one miles in length. Beneath the perpetual snows, and between the arms of the branching glaciers, grow impenetrable forests. Constant rains, pouring down from skies ever clouded, have covered the islands and mountain-sides with a dense mass of vegetation. This, towards the south, resembles the vegetation of Tierra del Fuego; but towards Chiloe the woods become incomparably more beautiful, and the dusky beach gives way to plants of a tropical character. Northwards the climate undergoes remarkable modifications. At Valdivia, the forests have a brighter hue. The apple, introduced from Europe, has there attached itself to the soil, and has spread over the elevated plains towards the sources of the Rio Negro; so that the Indians name that tract the land of apples. Beyond Valdivia, the forests on the coast become gradually more thin; but, on the sides of the Cordillera, woods of the noble Auracanian pine, the fruit of which yields the Indians a staple article of food, extend as far north as the volcano of Antuco. Through northern Chili, forests quite disappear from both sides of the Cordillera; a few scattered trees on its eastern side, alone give intimation of the approaching change. But, in Peru, the order of things is the reverse of that which obtains in the latitude of Patagonia. On the western side of the mountain-chain is the desert; on the east the boundless and impenetrable forests. No rain falls on the coast of Peru; but in the valley of Maynas, on the other side of the Cordillera, the rain never ceases; and one

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place in it is said to be visited by a thunder-storm every day in the year.

The inhabitants of Chiloe, rather more than forty thousand in number, are, in general, a mixed progeny of Spanish and Indian blood. The ten or eleven thousand of them who bear Indian names, are not distinguishable in features or manners from most of those who boast of Spanish descent. Here the philanthropist enjoys the rare spectacle of an aboriginal uncultivated nation raised to the same level (though an humble one) of civilisation with their European conquerors. They are all Christians, though still retaining, in secret, many barbarous superstitions. Docile, patient, and laborious, they might soon become, under the training of an enlightened government, a valuable population. Speaking of their resemblance to the natives of Tierra del Fuego, Mr Darwin remarks, 'Every thing I have seen convinces me of 'the close connexion of the different tribes, who, nevertheless, 'speak quite distinct languages;'—that is to say, we presume, that they strike the ear as distinctly different;—but the radical differences of languages can only be rationally traced by those who are enabled to compare them analogically, and with reference to their grammatical structure.

The Indians of the mainland further north, belong to that Araucanian nation who have derived so much celebrity from their fierce opposition to the encroachments of the Spaniards. They are still unsubdued; and retain, with their haughty manners, a large tract of the finest country in South America; in which the luxuriant productions of the climate of Chiloe is blended with the serenity of that of Chili. Mr Darwin says of them,—

'These Indians are good-sized men; their cheek-bones are very prominent; and, in general, they resemble the great American family to which they belong; but their physiognomy seemed to me slightly different from that of any other tribe which I had before seen. Their expression is generally grave and even austere, and possesses much character; this may pass either for honest bluntness or fierce determination. The long black hair, the grave and much-lined features, and the dark complexion, called to my mind old portraits of James the First.'—Vol. III., p. 366.

In May 1835, a British frigate, the Challenger, was wrecked at Tucapel, on the Araucanian coast. On that occasion, as Captain Fitzroy (who took a zealous part in aiding the shipwrecked men) relates, the Indians assembled on the shore in great numbers, all on horseback, and assisted in hauling the rafts ashore, or in helping the people to land. 'Even the Indian wo- 'men rode into the furious surf, and with their lassoes helped

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'very materially; some took the boys up behind their saddles 'and carried them ashore; others fixed their lassoes to the 'rafts.' Captain Seymour, of the Challenger, on receiving a present of a young heifer from the Cacique, expressed his regret that, situated as he then was, he had no equivalent to offer; whereupon the chieftain, with a violent exclamation, indignantly disavowed the intention of accepting any thing from men in distress. The Araucanians are well clad; their ponchos or mantles being made of a dark-blue woollen cloth of their own manufacture. The caciques pride themselves on their silver spurs, the silver bits and head-gear of their horses. The women are ornamented, in the old Peruvian fashion, with beads, golden pins, and large pendent trinkets of brass and gold. Captain Fitzroy saw one so adorned: 'She was a fine-looking young woman, the 'daughter of a cacique, who had accompanied some of her tribe 'to look at the shipwrecked white men. Her horse was a beau-'tiful animal, looking as wild as herself.'

We need not devote any of our space to the details of the survey of the coasts of Chili; but after what we have said of the opposite shores, it is incumbent on us to point out where the western coast of South America affords indications that the continent has, within a recent geological period, risen from the ocean. Mr Darwin, whose faculty of generalization is certainly of no ordinary vigour, has here very happily seized the circumstances of superficial configuration, which tend to confirm his theory of elevation. The Cordillera of the Andes marks the position of that great fissure in the crust of the earth through which the rocks of igneous formation have been thrown up. The general increase of that mountain mass towards the tropic, commensurate with the augmented subterranean forces, is also proportionate to the increased breadth of the continent raised by the latter. But the raising of the land, as Mr Darwin observes, has been gradual. Tierra del Fuego is a mountain land, partially submerged, intersected by great straits, and exposing, on the south and west particularly, a multitude of pinnacles which figure as islands. A little to the north, Otway Water is an example of interrupted communication, and of a strait recently converted into a lake by a rising of the land. Further on, the Patagonian plains have been all covered by the sea; and, at a later period, have been divided by straits from east to west, like Tierra del Fuego. On the western side of the Cordillera, the islands, from the strait of Magalhaens to Chiloe, differ from those on the western side of Tierra del Fuego, in having risen so much as to convert all but the deepest channels into dry land; thereby enlarging and simplifying (as we may ex-

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press it) the insular features. Thus, if Patagonia were sunk a little deeper in the sea, it would resemble Tierra del Fuego. Nay, still further, if the same operation were performed on Chili, that country would be found to resemble the insular portion of the Patagonian region; and the marine remains found in them, as well as their configuration, show that the Chilian valleys have been actually submerged for ages.

If the eye be thrown upon the map of South America, by Arrowsmith, which accompanies Captain Fitzroy's narrative—a map affording a most gratifying proof of the rapid increase of our geographical knowledge as well as of the improvement of the chalcographic art, and which, both for the industry and scrupulous exactness displayed in it, deserves the highest commendation—it will be seen that the alluvial plains of the La Plata, extending northward through the country of Grand Chaco, and between the rivers Guapai and Itonoma, have an uninterrupted though narrow communication with the alluvial plains of the Marañon. We point out this circumstance, because it appears to us that the existence of a great arm of the sea insulating the elevated land of Brazil, and of which the oscillating currents never carried off the sedimentary deposit, is important to explain the extensive and equable distribution of the soil of the pampas. Moreover, it is certain that the sea once covered the great valley of the Marañon. On the banks of the Huallaga, one of its chief branches, at the eastern foot of the Cordillera, 2000 miles from the Atlantic, but only 200 from the waters of the Pacific ocean, the hills are wholly composed of corals and gigantic ammonites.

The subterranean forces which have reared the American continent from the deep, are still in operation. As the Beagle sailed northward from Chiloe, in February 1835, the volcano of Osorno was descried eighty miles off in a state of eruption; thin lines of red hot lava gleamed on its flanks; shocks, too, were felt on board the ship, as if the chain cable were running out. The fears awakened by these symptoms, were unhappily confirmed on the ship's arrival at Conception. That town was completely destroyed by an earthquake on the morning of the 20th. In a few minutes the walls were levelled to the ground, and three immense waves in succession, produced by the convulsion, swept over the shores of the bay, and completed the ruin which the shocks had begun. The direction of the shocks Mr Darwin supposes to have been from the south-west; but the particulars on which he founds his opinion, would rather lead us to conclude that the impulse was in the opposite direction, or from the north-east. But, of the ascertained facts relating to this earthquake, the most interesting and important was one resulting from the minute survey made of the

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coast by Captain Fitzroy, who found that the land had been generally raised by the convulsion; the elevation at some places amounting to eight feet. There is reason, however, to believe that the land so raised again subsides nearly to its former level; so that the permanent encroachment of the land upon the sea, is a slower process than might be inferred from a hasty enquiry into the effects of earthquakes.

Before we quit the shores of South America, we cannot avoid adverting with satisfaction to the beneficial impulse communicated to the rising Republics, on both sides of the continent, by the energy of Englishmen. Many illustrations of the all-pervading activity of our countrymen, may be found in Captain Fitzroy's narrative. They improve the farms on the Uruguay; they cultivate gardens in the pampas and on the hills of Tandil, south of Buenos Ayres; and they carry on all the coasting trade. In search of seals, they despise the storms of the strait of Magalhaens;—penetrate the narrow channels of Tierra del Fuego, and of the adjoining archipelago to the north-west. In Chili, they have turned into good metal the copper ores which the native miners and metallurgists had always regarded as dross. On the great table-land of Cerro Pasco in Peru, they have made a vast increase to the comforts of the people, by discovering and teaching the use of coal. Two remarkable instances of the bold spirit characteristic of Britons, and which are likely to make a very favourable impression on the people of Peru, are of recent occurrence, and deserve to be here recorded. Not far from Arica, on the coast of Bolivia, is an agreeable valley of great extent, but condemned to barrenness and solitude by want of water. A company of English merchants, settled at Arica, have undertaken to conduct into this valley a never-failing stream from the highest Cordilleras. For this purpose, they have cut through a ridge exceeding 14,000 feet in height, and diverted across it a stream originating in the glaciers. Though this noble work is not yet completed, there is no reason to doubt of its success; and its importance, as an example, cannot be too highly estimated. The other instance of practical energy to which we have alluded, is, of its kind, still more extraordinary. The great lake of Titicaca in the Bolivian Andes—so celebrated in the history of the Incas—has never been hitherto navigated, except in small canoes; though encircled by a productive soil and considerable population. Situated, as it is, within the mountains, more than 11,000 feet above the sea, and at a distance from any forests, the construction of a substantial vessel on its shores could hardly have been thought of. An Englishman, nevertheless, who had once been a dockyard carpenter, set all difficulties at

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defiance. He shaped the timbers in the forest seven leagues off; put them together on the shores of the lake; launched, and now navigates on it, to the great admiration of the inhabitants, Spaniards as well as Indians, a handsome schooner of seventy tons burden.

The Beagle, in her voyage across the Pacific, touched at Tahiti, as well for scientific purposes as to urge on the Queen, Pomare, the payment of a sum agreed on as an indemnification for an act of piracy committed within her jurisdiction in the Low Islands. The demand was immediately acceded to; and the islanders, by their docility, good sense, and loyalty, made a most favourable impression on their visiters. Both Captain Fitzroy and Mr Darwin agree in vindicating the missionaries from the accusations brought against them by Kotzebue and others; and in representing the natives to be cheerful, and attached to their instructors. Notwithstanding the brilliant and rather seductive pictures formerly drawn of Tahiti, we cannot help thinking that the morality of that island has undergone a great improvement. Human sacrifices, infanticide, and systematic profligacy, are done away with; and even the Christian vice of intoxication has been strictly prohibited. These are marked facts, and not easily contravened. Where the missionaries stand beyond the temptation of political intermeddling, and are not animated by a merely sectarian zeal, it is impossible to conceive how they can do any thing else than good. But the danger of their straying beyond the limits of their pastoral cares, has been recently and very unhappily illustrated in Tahiti itself. It appears that three or four French Roman Catholic missionaries arrived there from the Sandwich islands. The Protestant missionary, Mr Pritchard, advised the Queen to expel them, and they were actually forced to re-embark. In consequence of this, when a French man-of-war touched at the island soon after, the resident French consul, M. Mærenhout, represented the affair in such a light, that a large sum of money was demanded in satisfaction of the insult, and the Queen being powerless was obliged to comply. It is a melancholy thing to see civilized nations, in the nineteenth century, taking such violent means to propagate Christianity.

The Keeling Islands were visited, chiefly for the sake of studying the coral formation; and—a little world of themselves—they were viewed by our authors with the eye of keen curiosity. If our space permitted, we should willingly extract some of Mr Darwin's remarks on the classification of coral islands; but we submit more cheerfully to the necessity of passing them over for the present, since he promises a volume specially devoted to the subject; in which, besides some details descriptive of the coral

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animal, we hope to find the boldness of his theories a little modified; and his alternate zones of elevated and depressed coral islands, resting upon a more solid foundation than the supposed undulations of a subterranean fluid.

Chronometrical observations were made a chief object of the second expedition of the Beagle. On board that vessel were twenty-two chronometers; and care was taken to rate them frequently where change of climate seemed to render that precaution necessary. The series of distances thus measured in time round the globe, amounted altogether to twenty-four hours and thirty-three seconds, instead of twenty-four hours exactly. This error, Captain Fitzroy suggests, is attributable to magnetism, or electricity, or some other latent cause operating in chronometers, carried in one direction round the earth. But to us it appears explicable without the aid of any mysterious agency. The distances, which are added together, are severally averages or mean amounts, and therefore only approximations. The error of thirty-three seconds in the result is very small indeed, compared to the several errors involved in the details; and it is, in reality, a great triumph of science to be able to state, that in a voyage of five years, the circuit of the globe measured in time by chronometers, differed from the truth only a two thousand six hundredth part of the whole.

The voyage of the Beagle has been not merely successful in the attainment of its scientific objects; it has had also the merit of proving, that in a long and most laborious service, and in the worst seas, the health and perfect safety of the crews may be ensured by good management. Nor is it difficult to account for this immunity from disease. Captain Fitzroy's volume breathes a healthy spirit. Nothing fortifies the constitution under trials so effectually as serenity of mind; and that is a blessing, which, on board a ship, flows from the commanding-officer or not at all. He has prepared his volumes for the public in as liberal a spirit as he executed his hydrographical labours; for he expended considerable sums from his private funds to complete the survey of the Peruvian coast, by which, as he observes, 'the service did 'not suffer;' and for which, we feel bound to add, the public is deeply indebted to him.

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ART. I.—*The Despatches of Field-Marshal the Duke of Wellington, during his various Campaigns in India, Denmark, Portugal, Spain, the Low Countries, and France, from* 1799 *to* 1818. *Compiled from Official and Authentic Documents.* By Lieut.-Colonel GURWOOD. 12 vols. 8vo. London: 1836–8.

OUR former article upon this publication, was limited to the volumes comprehending the Despatches written by the Duke of Wellington during his campaigns in India. We are now to examine what forms in fact a distinct, and by far the most important and extensive, portion of the work; and our readers will probably allow that we stand in some need of indulgence, in undertaking to compress within a comparatively small compass an account of that long and extraordinary series of Despatches which arose out of his Grace's memorable services in Europe.

In the East, he had administered the civil affairs of an extensive territory, in such a manner as both to merit the approbation of his superiors and to give satisfaction to those who were placed under his government. He had brought difficult negotiations to a successful termination, and he had led numerous armies to brilliant and decisive victories. On his return to Europe, however, no higher military situation opened to him, owing to the junior rank he still held amongst General Officers,

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