

LONDON, SATURDAY, JUNE 1, 1839.

## REVIEWS

*Narrative of the Surveying Voyages of His Majesty's Ships Adventure and Beagle, between the Years 1826 and 1836, &c.* 4 vols. Colburn.

THE arduous task of surveying the southern extremity of the New World was one which devolved naturally on the most eminent of commercial nations. A highly-civilized maritime people could alone feel that interest in the welfare of the mariner which prompts to such an undertaking, or command that rare union of scientific acquirement and consummate seamanship which is required for its successful execution. Great Britain may take a pride, not only in that rank among nations which leads her to engage in labours redounding to the general interest of mankind, but still more in the skill and hardihood of her sons, which enable her to achieve, in the noblest manner, her honourable enterprises. The difficulties overcome, and hardships endured, in the survey of the Magellanic regions—the most tempestuous portion of the earth—are but lightly touched on in the volumes now before us; in which, on the other hand, the reader will find, along with an interesting narrative, an immense body of varied and valuable information. In our present attempt to sketch the history of the voyages of the *Adventure* and *Beagle*, we shall, for brevity sake, blend together, as far as possible, the various journals of which the narrative is composed. The volume containing the narrative and remarks of Mr. Darwin, who accompanied the second expedition of the *Beagle* as naturalist, shall be reserved for a future occasion.

The stormy character of Cape Horn and of Magellan's Straits is known to all. Sir Francis Drake, with the peculiar good fortune of a hero, found favourable winds in the Strait, through which he effected a passage in seventeen days; but none have been since able to boast of similar dispatch. There is an account of a ship carrying a press of sail round Cape Horn—but instances of this kind are rare indeed. Commodore Byron, when adventing to the hardships endured by his crew in a voyage of seven weeks through the Straits, makes this remark—"It is probable, that whoever shall read this account of the difficulties and dangers which attended our passage through the Straits of Magellan, will conclude that it ought never to be attempted again; but I, who have been twice round Cape Horn, am of a different opinion." Captain Wallis complained, that during four months (from December to April, 1767) he was in almost continual danger of shipwreck, "in a region where, in the midst of summer, the weather was cold, gloomy, and tempestuous—where the prospects had more the appearance of a chaos than of nature—and where, for the most part, the valleys were without herbage, and the hills without wood." In this sketch, it must be acknowledged, the desolation of the scene is exaggerated. Strong currents, and apparently irregular tides, the low and sterile shores of the eastern end of the Strait, and frequent storms, might well make a dismal impression on the mind of the navigator, but still there are vernal spots in the Magellanic regions, so prominently contrasted with the surrounding winter, that they cannot fail to seize the attention of the candid observer. Captain King, previously distinguished by his survey of New Holland, commanded the first of the expeditions of which the narrative is before us, and reached the eastern entrance of the Strait on the 20th of December (the midsummer of those regions), 1826; he says of the country round Cape Froward—

"The scenery of this part of the Strait, instead of being, as Cordova describes it, 'horrible,' is, at this season, exceedingly striking and picturesque. The highest mountains certainly are bare of vegetation, but their sharp peaks and snow-covered summits afford a pleasing contrast to the lower hills, thickly clothed with trees quite to the water's side, which is bordered by masses of bare rock, studded with ferns and moss, and backed by the rich dark green foliage of the berberis and arbutus shrubs, with here and there a beech tree, just beginning to assume its autumnal tints."

In Port Famine, one of those evergreen beech trees was found to measure one and twenty feet in circumference near the ground. But the sheltered coves on the south side of the Strait, as Port San Antonio, are adorned by a richer and more varied foliage.

"This port is formed by a channel, a quarter of a mile wide, separating two islands from the shore. The best anchorage is off a picturesque little bay, on the south island, which is thickly wooded to the water's edge, with the holly-leaved berberis, fuchsia, and veronica, growing to the height of about twenty feet—overtopped and sheltered by large beech, and winter-bark trees, rooted under a thick mossy carpet, through which a narrow Indian path winds, between arbutus and currant bushes, and round prostrate stems of dead trees, leading to the seaward side of the island.

"In no part of the Strait," continues the journal, "did we find the vegetation so luxuriant as in this little cove. Some of the winter-bark and currant trees had shoots more than five feet long, and many of the winter-bark trees were two feet in diameter. The veronica grows, in the sheltered parts, to the height of twenty feet, with a stem six inches in diameter. It was found, too, on the windward side of the island in abundance, and of large size, rooted in the very wash of the sea-beach, and exposed to the full force of the cold winds and hail storms which rush down the wide western reach of the Strait. The day after our arrival, the gale subsided, and the weather became very fine indeed. The stillness of the air may be imagined, when the chirping of humming birds and buzzing of large bees were heard at a considerable distance."

Perroquets, as well as humming-birds, frequent the evergreen groves of this region, where the mariner, harassed by fickle and violent winds, often marks only those features of the scene which serve to fortify the impression made on his mind by the inclemency of the skies. These feathered inhabitants of tropical regions here dwell in the close vicinity of a Polar climate. Conspicuous from all sides, at the western part of Terra del Fuego, Mount Sarmiento rises to the height of 6,800 feet above the sea, covered with perpetual snow. From the chain of mountains of which it is the culminating point, immense glaciers extend down to the sea, fill up the craggy inlets, and overhang the narrow channels, which conduct through the insular labyrinth. These glaciers have, in some instances, an extent of ten or a dozen miles. In summer, large masses of ice, detached from them, plunge into the sea, with a noise heard leagues off like thunder; and numerous cascades, bounding from their upper edges, are seen glistening through the trees below, and over those very thickets in which the humming-bird disports. When the increased knowledge and improved navigation of the Magellanic seas shall have, in some measure, disarmed them of their terrors, the advantages which they possess will be more fairly appreciated, and they will be found to be far less inhospitable than has been hitherto imagined. The following observations of Capt. Fitzroy are calculated to confirm this hope:

"Though the season was so far advanced, some shrubs were in flower—particularly one, which is very like a jessamine, and has a sweet smell. Cranberries and berberis-berries were plentiful. I should have liked to pass some days at this place, it was so very pretty—the whole shore was like a shrubbery.

I cannot account for the exaggerated account of the Fuegian coasts given by some voyagers. It is true, that the peaks of the mountains are covered with snow, and those sides exposed to the prevailing west winds are barren and rugged; but every sheltered spot is covered with vegetation, and large trees seem to grow almost on the bare rock. I was strongly reminded of some of the Greek islands in winter, when they also have a share of snow on their mountains."

Natives were seen on the northern shore soon after the vessels entered the Strait, and, an intercourse being established with them, they readily bartered a supply of fresh meat (of the guanaco) for a little tobacco. These Patagonians wander over an immense extent of barren plains, from the Rio Negro to the Straits of Magellan. The chief person among them, in respect to utility at least, was, on this occasion, a woman named Maria, who spoke broken Spanish, and said that she was born in Paraguay. Some of their horses were well caparisoned, after the fashion of the Gauchos of Buenos Ayres. Maria stated that she had a brother named Bysante, a Cacique, near the river Santa Cruz, who was a very important personage, on account of his immense size, as well as of his riches. Another of her brothers, who accompanied her, seemed to be a fair average specimen of a Patagonian. "Though only six feet high, his body was large enough for a much taller man." When it is considered that the Patagonians, with an average height exceeding five feet ten inches, have all exceedingly robust proportions, and may be more properly called a large, than a tall race, it does not seem very surprising, that individuals among them should occasionally exceed seven feet in height, as is asserted by Falkner and Byron. It may be well imagined, that in the sixteenth century, when disease and mortality prevailed to such an extent on ship-board, European seamen were stunted specimens of their race; and that, on comparing their own exhausted frames with the ponderous bodies of the Patagonians, they might naturally enough call the latter giants. Maria's tribe appeared to blend with their native superstitions some corrupt tradition of Christianity, derived probably from the labours of Falkner and the other Jesuits. They were friendly, fearless, and unreserved in their intercourse with our vessels, though their passion for ardent spirits showed plainly how little benefit they habitually derive from their acquaintance with Europeans.

In the prosecution of the survey, Captain Stokes, commanding the *Beagle*, proceeded, in 1828, to examine the western coast of Patagonia. He found some fine harbours, and succeeded in ascertaining the general outline of that intricate shore; but the continual bad weather subjected him to such fearful risks and frequent disappointment, that his spirits sank under the load of anxiety—excitement gave way to dejection; so that soon after rejoining his comrades in the Straits, he put an end to his existence. This melancholy event aggravated, as might be expected, the symptoms of the disease which had already attacked the crews of both vessels, and for health sake it was necessary to leave the Strait, and repair to Rio Janeiro.

Captain Fitzroy succeeded to the command of the *Beagle*, and, in the beginning of 1829, the survey was resumed. The *Adventure*, after examining the shores of Chiloe, and touching at Valparaiso, paid a brief visit to the isle of Juan Fernandez—a spot of which the chief title to fame is derived from its connexion with the history of Alexander Selkirk, the prototype of Robinson Crusoe. The isle of Juan Fernandez has an extremely romantic and interesting appearance. In the midst, the mountain called the Anvil towers above a range of frowning

precipices, to the height of 3000 feet, while a bold, rocky shore but imperfectly conceals the myrtle groves and stately forests within. A colony of about forty persons, employed in the seal and cod fishery for the Chilean market, were in 1830 the sole tenants of that fine island. They neither till the ground, nor breed any useful stock, but, with true Chilean thoughtlessness, live on what Providence sets before them. The mariner who touches at the island finds there no refreshments, save fish and water; for the goats, with which the buccaneers formerly stocked it, were purposely hunted down by the Spaniards, and are now only seen on the inaccessible heights of the central mountains.

The *Beagle* meanwhile directed her course to the southern shores of Terra del Fuego, the general character of which is very adequately represented by the name of a conspicuous point of it, namely, Cape Desolation. The snowy mountains are there still in sight; glaciers too occur; but the ever-raging south-west winds allow no trees to grow, and the coast presents nothing but bare rocks lashed by the restless ocean. Yet, strange to say, in these troubled waters, was seen, under sail, the frail canoe of a native, the sail being made of seal-skin; and it was discovered also, that the Fuegians are not afraid to cross over to the Ildefonso islets, situated eight or ten leagues from the main. A singular adventure, the consequences of which were highly interesting and important, occurred in this part of the survey. The master of the *Beagle* was sent with a fine whale boat, to continue the survey from Cape Desolation, while the vessel lay at a secure anchorage at London Island; his absence, prolonged beyond the expected duration, caused great uneasiness, which was at length relieved in the manner thus related by Captain Fitzroy.

"At three this morning, I was called up to hear that the whale boat was lost—stolen by the natives; and that her coxswain and two men had just reached the ship in a clumsy canoe, made like a large basket of wicker work, covered with pieces of canvas, and lined with clay, very leaky and difficult to paddle. They had been sent by the master, who with the other people was at the cove under Cape Desolation, where they encamped on the first day. Their provisions were all consumed, two-thirds having been stolen with the boat, and the return of the natives to plunder and perhaps kill them, was daily expected. The basket, I cannot call it a canoe, left the Cape (now doubly deserving of its name,) early yesterday morning, and worked its way slowly and heavily amongst the islands, the men having only one biscuit each with them. They paddled all day and the following night, until two this morning, when in passing the cove where the ship lay, they heard one of our dogs bark, and found their way to us, quite worn out by fatigue and hunger."

Though the distance paddled by these men in twenty hours, was hardly more than five leagues, yet theirs is, we doubt not, the longest voyage on record performed in a basket. Parties immediately sallied forth in search of the lost boat; traces were found which led from one native encampment to another; but still the superior local knowledge of the thieves rendered pursuit fruitless; and the toilsome search ended with the seizure of some native families, to be kept in durance till the restitution of the stolen property. They however all effected their escape, jumping overboard at night and swimming ashore, with the exception of a little girl eight years old, who, from the circumstances which led to her captivity, was named Fuegia Basket; a lad called Boat-memory; and a young man, honoured as well as the barren promontory where he dwelt, with the name of York Minster. To these was subsequently added, a boy, who, from the price paid for him, obtained the designation of Jemmy Button. The little girl was the first to become

reconciled to her changed situation, and to yield up her affections to the luxury of biscuit. York Minster, being the oldest, was the last to get rid of the restless suspicion and sullenness characteristic of the wild state; but by the time that they reached England, in the latter half of the year 1830, they had all put off the savage, and given promise of still further improvement. These poor captives had fallen into the hands of a generous patron. Boat-memory died of the small-pox, at Plymouth. The rest, saved by medical attention from the array of new diseases which attacked them, were placed for the benefit of their education at Walthamstow. There they learned to speak English, and grew rich by the bounty of numerous friends. They did not, however, forget their native land, and Captain Fitzroy was preparing to restore them to their home at his own expense, when the *Beagle* was again commissioned, and he was re-appointed to prosecute the survey of the South American shores. Mr. Darwin, to whom the lovers of natural history are so much indebted, volunteered to accompany this second expedition. As it was hoped, that the Fuegians might be made instrumental in the introduction of Christianity among their countrymen, a young man named Matthew, in the service of the Church Missionary Society, undertook to make the experiment of founding a mission in Terra del Fuego.

The expedition left England towards the end of December 1831, and touching at Porto Praya, Bahia, and other places, for the sake of chronological observations, commenced the labours of the survey on the low coast, between the La Plata and Rio Negro. The Pampas here descend to the level of the sea, "forming," as our author expresses it, "a half-drowned coast, on which, although the dangers are numerous, tides strong, banks muddy, and the shores everywhere low, the intervening ports are so safe, and so likely to be useful, that it was absolutely necessary to examine them." Notwithstanding the extensive flats and mud banks, these shores are extremely healthy. The low cliffs which occur at wide intervals along the coast, abound in fossils of various kinds. Rain rarely falls on the western Pampas, but there are clouds and showers of a different kind, of which the following is an instance.

"The horizon," says Capt. Fitzroy, "was strangely distorted by refraction, and I anticipated some violent change. Suddenly, myriads of white butterflies surrounded the ship, in such multitudes, that the men exclaimed, 'it is snowing butterflies.' They were driven before a gust from the northwest, which soon increased to a double-reefed topsail breeze, and were as numerous as flakes of snow in the thickest shower. The space they occupied could not have been less than two hundred yards in height, a mile in width, and several miles in length."

The Fuegians were much elated as they approached their country; they extolled its beauty, and indulged in anticipations of a cordial reception from their friends. They were not aware of the change which one year's intercourse with civilized men had wrought in their perceptions. But at last, in Good Success Bay, five robust natives, like Patagonians, presented themselves to view.

"One of these Fuegians was so like York Minster, that he might have passed for his brother. About his eyes were circles of white paint, and his upper lip was daubed with red ochre and oil. Another man was rubbed over with black. It was amusing and interesting to see their meeting with York and Jemmy, who would not acknowledge them as countrymen, but laughed at and mocked them."

The home of Jemmy Button was at a place called Woollya, on Navarin Island, where all the local advantages desirable for the establishment of a mission seemed to be united. There were clear spaces of grassy land, lively brooks, fine trees, and a profusion of wild flowers, which

augured well for the growth of garden seeds. Wigwams were immediately constructed for the settlers, York Minster and his wife Fuegia, late Miss Basket, Jemmy Button, and Mr. Matthew. Jemmy's meeting with his relations is graphically narrated by our author.

"Canoes continued to arrive; their owners hauled them ashore on the beach; sent the women and children to old wigwams, or to a little distance, and hastened themselves to see the strangers. While I was engaged in watching the proceedings at our encampment, and poor Jemmy was getting out of temper at the quizzing he had to endure, on account of his countrymen whom he had extolled so highly until in sight, a deep voice was heard shouting from a canoe more than a mile distant: up started Jemmy from a bag full of nails and tools which he was distributing, leaving them to be scrambled for by those nearest, and upon a repetition of the shout, exclaimed, 'My brother!' He then told me, that it was his eldest brother's voice, and perched himself on a large stone to watch the canoe, which approached slowly, being small and loaded with several people. When it arrived, instead of an eager meeting, there was a cautious circumspection which astonished us. Jemmy walked slowly to meet the party, which consisted of his mother, two sisters, and four brothers. The old woman hardly looked at him, before she hastened away to secure her canoe and hide her property, all she possessed, a basket containing tinder, firestone, paint, &c., and a bundle of fish. The girls ran off with her without even looking at Jemmy; and the brothers, (a man and three boys) stood still, stared, walked up to Jemmy, and all round him, without uttering a word. Brutes, when they meet, show far more animation and anxiety than was displayed at this meeting. Jemmy was evidently much mortified, and to add to his confusion and disappointment, as well as my own, he was unable to talk to his brothers, except by broken sentences in which English predominated."

The great number of natives collected round the new settlers caused, at first, some apprehensions, but these proved to be groundless. Jemmy's pockets were picked by his countrymen, who stole also, when and what they could, from the vigilant York, "but from Fuegia they did not take a single article; on the contrary, their kindness to her was remarkable, and among the women she was quite a pet." Matters being thus arranged, the boats proceeded to examine the Beagle Channel, and then, after the lapse of a few days, returned to Woollya, to ascertain the safety of Mr. Matthew, and to learn his prospects. He was found to be quite disheartened by the constant teasing and the threats of the savages. "Sometimes a party of them gathered round him, and, if he had nothing to give them, teased him by pulling the hair of his face, pushing him about, and making mouths at him. His only partisans were the women; now and then he left Jemmy to guard the hut, and went to the native wigwams, where the women always received him kindly, making room for him by their fire, and giving him a share of whatever food they had, without asking for anything in return."

York and Fuegia fared well and lost nothing; but Jemmy Button was sadly plundered by his friends and relations. He appeared very sorrowful, and frequently exclaimed, "My people very bad; very great fool." As he and York were unable to exert such an influence over their countrymen as might secure Mr. Matthew from injury, it was at once determined not to expose the latter gentleman to the risks of savage life, among a people without any rule or authority, who are known to eat their enemies taken in war, and, in time of famine, even the old women of their own tribes.

From Terra del Fuego, the *Beagle* sailed to the Falkland Islands, for the sovereignty of which there has been as much dispute among nations, as if, instead of a succession of bleak moorlands, they presented a paradise to the view. In 1763

the French established a colony at Port Louis, which was soon after given up to Spain. England, at the same time, laid claim to the islands, and made a settlement in Port Egmont. War and rival claims marred the prosperity of these establishments. In 1820 the Argentine flag was hoisted on the Falkland Islands, and, notwithstanding the protest of the British government, possession of the islands was kept by Buenos Ayres, till 1831, when the commandant having ventured to detain some North American sealers who disregarded his authority, the establishment at Port Louis was destroyed by the commander of the American corvette, the *Lexington*. The British flag was soon after hoisted on the islands, on which, since 1834, a British officer has also resided, empowered to exercise the necessary authority. Though the first view of those islands is extremely dismal, they are by no means unproductive. There is abundance of excellent herbage, and the black cattle, horses, pigs, and rabbits turned loose upon the eastern island by the Spaniards, have greatly multiplied. The black cattle appear to have benefited by the humidity of the climate, far exceeding in size the wild cattle of the Pampas. The bulls are said to be among the largest and fiercest of their race. The Gauchos residing on the Falkland Islands, previous to the establishment there of the British authority, used to slaughter those animals merely for the sake of their tongues. The seal-fishery on the shores was also carried on in the most indiscriminating and destructive manner.

After a very interesting examination of the western coast of Patagonia, during which the river Santa Cruz was explored to the feet of the Andes, the *Beagle* returned to Terra del Fuego, on its way to the Pacific. It may be easily conceived that they who had taken so much pains to sow the seeds of civilization among the rude inhabitants of those wild shores, felt not a little anxious concerning the result of the experiment. Hence the pang of disappointment, and the gloomy forebodings when it was found that Woollya was deserted. At length a canoe was seen approaching the ship in haste, and in it "was one," says our author, "whose face I knew, yet could not name."

"A sudden movement of the hand to his head (as a sailor touches his hat) at once told me that it was indeed Jemmy Button,—but how altered! I could hardly restrain my feelings, and I was not, by any means, the only one so touched by his squalid miserable appearance. He was naked, like his companions, except a bit of skin about his loins; his hair was long and matted, just like theirs, he was wretchedly thin, and his eyes were affected by smoke. I thought he was ill, but he surprised me by saying that he was 'hearty, sir,—never better,' that he had not been ill even for a day, was happy and contented, and had no wish whatever to change his way of life. He said that he had got 'plenty fruits, plenty birdies, ten guanaco in snow time, and too much fish.'"

It appeared that York had gone off to the west in a large canoe which he had made in imitation of some seen by him at Rio Janeiro; and that he had robbed Jemmy of all his wealth. Fuegia continued to the last to wear her European clothes, and was well treated by the savages. Although the attempt to civilize these people did not succeed in the manner or on the scale contemplated, it must not be supposed that it failed altogether. Jemmy manifested an adequate sense of the benefits bestowed on him, and all his family entered into his feelings. The whole Button tribe, occupying Button Island (for at Woollya they were exposed to hostile invasion), assumed a cordial and unreserved demeanour towards white men, added many English words to their vocabulary, and have thus advanced in refinement as far perhaps as so rude a people can be reasonably expected to advance in so short a period.

As the *Beagle* approached the coasts of Chile in 1835, the Mountain of Osorno, distant seventy-three miles, was observed in the night to be in a state of eruption, throwing up brilliant jets of flame or ignited matter, high into the darkness, while lava flowed down its steep sides in torrents. This mountain, about 7550 feet in height, is remarkable for its form, which is that of a gigantic glass-house. When seen from a distance of 90 or 100 miles, the whole cone, covered with snow, stands out in the boldest relief from the inferior range of mountains. This eruption appears to have been connected with the convulsions which a little after extended over a vast region, comprising the southern half of Chile. On the 20th of February the city of Concepcion was totally destroyed by an earthquake. The shocks were felt on board of the *Beagle*, at sea, as if the anchor had been let go, and the chain cable were running out. The fact that a great part of the coast of Chile was, at least temporarily, elevated by that earthquake, is confirmed by our author.

The Galapagos Islands owe their origin to the volcanic agency which still shakes the foundations of the opposite continent. They present to view, "black, dismal-looking heaps of broken lava, forming a shore fit for Pandemonium." They have, however, some beautifully fertile spots, and have been selected, by the republic of the Ecuador, for the seat of a penal colony. From these frowning rocks the *Beagle* proceeded to Tahiti, where the coral shores are shaded by groves of palm and bread-fruit trees. Mr. Darwin, who made a three days' excursion among the wildest parts of the mountains, was quite enthusiastic in his account of the strength, activity, and, above all, the excellent disposition and good conduct of the two natives who were his companions and guides. Capt. Fitzroy was authorized to press the queen to fulfil her engagement to pay a stipulated sum as an indemnification for the piratical seizure of an English vessel among the Low Islands. The Queen Pomare, surrounded by her councillors and nearest relatives, but without any state, received his visit. They at once decided to pay the debt. Thirty-six tons of pearl-oyster shells, belonging to Pomare, were to form part of the indemnification; the remainder was to be contributed by the queen's private friends. Our author's account of the natives of Tahiti is calculated to awaken the liveliest interest in their future welfare and progressive civilization. He laments the ascetic habits inculcated by the missionaries, who discourage amusements, and will not permit a lively people, living under bright skies, either to dance or sing. This austerity will, we fear, operate to the disadvantage of the Protestant missionaries, now that Roman Catholic teachers have got footing on the island. "Is it not a striking fact," observes Capt. Fitzroy, "that the people of a whole country have solemnly refrained from drinking spirits? does not this act alone entitle them to respect and high consideration?" They want, however, we grieve to say, the power to enforce their laws of temperance, and to repel the attacks made on their sobriety by the dissolute seamen who touch at the island.

From the Society Isles the *Beagle* sailed westward to New Zealand; then, visiting Sydney and King George's Sound, directed her course to the Keeling or Coco Islands,—a group, of coral formation, which has been taken possession of by an American named Ross. Aided by forty or fifty Malays, he collects coco-nut oil, turtle, tortoise shell, and bicho do mar, with which he trades to Sincapore and Batavia. The principal object which the expedition had in view, in visiting those islands, was to study the growth of the coral formation, and as we expect to find this subject amply treated of in Mr. Darwin's volume, we shall here conclude our narrative, with

the observation, that while the *Beagle* was in commission, from 1829 to the end of 1836, during a voyage longer than Vancouver's, fatal disease was unknown, nor did any accident of consequence occur on board. This fact speaks volumes for the good discipline of the ship, and the vigilance of the officers, and their constant attention to the comfort and well-being, moral as well as physical, of the men.

*History of the Great Reformation of the Sixteenth Century in Germany, Switzerland, &c.* By J. H. Merle d'Aubigné. Vol. II. Walter.

*Confession of the Name of Christ.* By the same author. Low.

IN our notice of the first volume of this 'History of the Reformation' (*Athen.* No. 573), we lamented "the strong religious bias," not to say the sectarian prejudice, which has led the author to write as a controversialist rather than as a historian. The second volume is still more disfigured by party zeal; but what the history has lost in authority it has gained in interest. The author is thoroughly in earnest, "his thoughts breathe and his words burn;" with an instinctive power, he seizes on the most striking and characteristic features of an exciting period, and groups them into a series of pictures which present themselves to the mind with all the force of reality. His work promises, indeed, to be an admirable specimen of the 'Romance of History,' and to bear about the same relation to history as Ivanhoe to Hume's reign of King John.

The most elaborate and highly-wrought passage in the present volume is Luther's appearance before the diet of Worms, which is in writing what Sir David Wilkie's John Knox Preaching is in painting, and would almost seem to have been designed to suggest to the artist the composition of a companion picture. But a more interesting and more novel subject to the generality of readers is the history of Zwingli and the Swiss Reformation, for both the man and the cause in the Helvetic mountains were more simple, more pure, and less tainted by party or personal motives than the Reformers and the Reformation in any other part of Europe. The Swiss heroes of Protestantism were worthy of this evangelical Sir Walter Scott, and our specimens will show that D'Aubigné is not unequal to such a theme. He begins by picturing forth the spot where Zwingli first drew breath, in order to show how his character was in some degree moulded and formed by the localities of infancy:—

"Toward the middle of the eleventh century, two pilgrims penetrated from St. Gall, in the direction of the mountains southward of that ancient monastery, and reached an uninhabited valley ten leagues in extent. This valley is, on the north, separated from the canton of Appenzel by the lofty mountains of the Sentis, the Sommerigkopf, and the Old Man. Southward the Kuhfirsten, with its seven peaks, rises between it and the Wallenses, Sargans, and the Grisons. Towards the east, the valley lies open to the rays of the rising sun, displaying in the distance the magnificent prospect of the Tyrolean Alps. The two pilgrims arriving at the source of a small stream, the Thur, erected there two cells. By slow degrees thinly-scattered habitations appeared: and on the most elevated site, 2010 feet above the lake of Zurich, there arose around a little church a village called *Wildhaus*, or the *Wild-house*, on which now depend two hamlets, Lisighaus, or Elizabeth's house, and Schonenboden. On those elevated spots the earth does not yield its fruits. A green sward of Alpine freshness clothes the whole valley, ascending the sides of mountains, above which enormous rocks rise in savage grandeur towards heaven. A quarter of a league from the church, near Lisighaus, beside a footway leading to the pastures beyond the river, there still stands a solitary house. Tradition informs us that the wood required for the

treme, which being wholly unnecessary, and, at the same time, imposing serious restrictions upon commerce, admits of no justification."

These are a few only of the prevailing defects of a code pre-eminently absurd, unscientific, and arbitrary; a code imported and adopted from the practice of the most uncivilized and ignorant nations. Akin to the quarantine laws is the condition of English society in all that respects the subject of typhus, cholera, and the general purification of large and densely inhabited cities. On this subject we have the concurrent testimony of Dr. Yates, every page of whose little work bears evidence of the insufficiency of the existing arrangements for preserving the health of the metropolis, and consequently of the ignorance of the parties whom self-preservation could not rouse to observation and to just reflection. After a reference to these points, we find the following passage in Mr. Maunsell's book:—

"And why is such a state of things allowed to continue? Simply because, in latter days, those who should have assumed the useful and honorable position of leaders of the medical profession, have too often failed to use the opportunities which their success in life has opened to them, of raising their profession and themselves in public estimation, by engaging in the performance of public duties. Simply, because such gentlemen have been fighting with their juniors for the paltry guins of their trade, instead of employing in the service of the community and of their own reputation, and, as a natural consequence, that of their profession, that leisure which their early success would have allowed them to enjoy, and that practical wisdom, medical and worldly, which it was, at least, within their reach to have acquired. Had the seniors of the medical profession not systematically sunk their character as citizens in that of attendants upon the sick: had the richest and highest of them not too frequently, even to the end of their servile career, continued to be menials: had they not, throughout their whole lives, been, in every instance, deterred by the fear of losing a single guinea, from coming forward, and manfully engaging in public questions which lay within their province, the public and the medical profession would not now labour under many of the grievances to which I have already hastily alluded."

Now all this, as it seems to us, is a mere prescribing at symptoms,—an attacking of effects, with an overlooking of causes. The guinea-hunting, of which Mr. Maunsell complains, is clearly inevitable, in the existing state of English society. To physicians with large families, it is too commonly an ever-present and harassing necessity, influential to the very last hour of declining strength and intellect. The number of independent fortunes raised by prescribing is very limited; and few physicians leave their children in easy circumstances, even for beginning their struggle in life. On the other hand, it is too much to expect that men should voluntarily undertake laborious and thankless public duties, where there is no public to appreciate and to honour their profitless services.

The remedy which Mr. Maunsell has in his mind for altering this state of things, is not very clearly developed; but his idea may be perhaps briefly and comprehensively expressed, as the proposed establishment of a governmental department—a ministry of health—a professional centre, with which all local boards might correspond, and from which they might derive impulse and unity. We certainly cannot believe that much is to be expected from the utmost vigour and disinterested activity of the profession, if exerted individually and without such a machinery; and it seems, to us, more than probable that something of this sort must shortly be attempted. We are going out of our ancient, simple institutions, and something beyond them is becoming hourly more indispensable. The usual practice, in cases of sudden emergency, is to apply to the College of Physicians, as the great

medical council of the nation; and the result has, with few exceptions, been disappointment. This we hold to be no just matter of reproach to that body. Public opinion marks with reprobation every medical candidate for its confidence, who makes himself conspicuous for any acquirement or pursuit, which can be imagined, in the slightest degree, to distract his attention from the sick bed: and if it were not too much to expect, from the members of the College, industry and zeal, where there is neither honour nor profit, the very first consequence of any one of the body taking a prominent part in any such delegated duty, would be a sensible decrease in his profitable business. There are other causes, too, which render the metropolitan practitioner not always the best authority in questions of what Mr. Maunsell calls "political medicine." A ministerial department, with honourable position, and salary sufficient to withdraw able and educated men from the drudgery of practice, might afford a better means of coping with the multitude of medical difficulties which at present engage legislative attention, and give rise to empirical remedies, conceived in ignorance, and terminating in vexatious inefficiency. We are far, however, from thinking that even such a measure would suffice to ensure a maximum of sanitary improvement. The highest officers in the state are efficient, only as they are responsible to public opinion. But where there is no diffused knowledge, there is no sound opinion. No matter what the question,—from a quarantine law, to a lunacy case—from the purity of Thames water, to an ordinary trial for nuisance—the most miserable helplessness and childish simplicity are manifested, both in functionaries, and in the public that judges of them: and as long as this state of things continues—as long as general society is at the mercy of its servants—so long will its interests be betrayed by those who are without a master to stimulate and to control them.

*Narrative of the Surveying Voyages of H.M.S. Adventure and Beagle, between the Years 1826 and 1836, &c.*

[Second Notice.]

THE defect of these volumes (and what work has not its defect?) is, that consisting, not of a single narrative, but of several journals of persons viewing the same countries together or in succession, they exhibit occasionally a want of unity and continuous interest, and contain frequent repetitions, not merely as regards the movements and operations of the expedition; but as the surveyors, in their journals, often encroach on the domain of the naturalist, so he again is obliged to connect together the results of his investigations by a separate web of personal narrative. We must not, however, be supposed to intimate that Mr. Darwin's journal ought to have been dispensed with, or absorbed in the body of the preceding narrative: we only mean to express our regret that by appending it to a work composite in its nature, and diffuse in execution, he should have been obliged to abridge his remarks for the purpose of confining himself as much as possible to his peculiar province, and, even on topics of natural history, to omit many details, the exposition of which would, in his hands certainly, have been both amusing and instructive. It is true that he intends to disclose his facts as well as theoretical views, completely, in a series of works, one of which is now in course of publication; but, in the mean time, the journal which is the subject of our comments labours under this disadvantage, that, stripped of details, it exhibits a predominating spirit of bold generalization, of which the world, not without justice, is exceedingly mistrustful. Mankind like to feel convinced that the utterer

of theories has spared no pains in assaying the metal to which he seeks to give general currency. They require him to be a minute and patient observer, not biased in his observations by preconceived notions. He must not seem disposed to reject the consideration of dry facts, and to rear his goodly edifice to its full height at once on assumed premises. If he would inspire the world with confidence, he must allow every stone to be examined, from the lowest foundations to the crown of the pediment. To us, Mr. Darwin's remarks seem to display no common sagacity and power of observation, but, denuded as his journal is in general of elemental facts, we doubt not that many of the theories therein contained will meet with a less general concurrence than they are really entitled to.

Having thus candidly expressed our opinion that Mr. Darwin's journal, forming the third volume of the *Narrative of the Voyages of the Adventure and Beagle*, has the rare fault of seeming, though a good-sized volume, and following two others of still more portly dimensions, to be much too short; we shall now proceed to unfold the nature of its contents. By following our author's track, we shall have the best evidence of his ardour, and the readiness with which he converses with nature in every variety of situation.

St. Jago, one of the Cape Verd islands, viewed from the sea, appears a desolate, burnt mass, condemned by volcanic fires and the rays of a tropical sun to perpetual sterility; but in the centre of the island the village of St. Domingo presents a smiling scene of unexpected beauty. The village is situated at the bottom of a valley bounded by lofty and jagged walls of stratified lava. A broad margin of bright green vegetation marks the course of a lively little stream, and affords a striking contrast with the black rocks behind. In this secluded spot, when visited by our author, the population, as singular as the scene, were celebrating a grand feast day. In language and manners, the inhabitants of the island are Spaniards, but they are most of them jet black, and, we presume, of Yeloff descent.

"On our return," says Mr. Darwin, "we overtook a party of about twenty young black girls, dressed in most excellent taste; their black skins and snow-white linen being set off by their coloured turbans and large shawls. As soon as we approached near, they suddenly all turned round, and covering the path with their shawls, sung with great energy a wild song, beating time with their hands upon their legs. We threw them some vintems, which were received with screams of laughter, and we left them redoubling the noise of their song."

The atmosphere at St. Jago is generally very hazy, an appearance due, according to our author, to an impalpable dust which is constantly falling, even on vessels out at sea. The dust is of a brown colour, and under a blow-pipe easily fuses into a black enamel. We cannot assent to the opinion that it is carried from the coast of Africa. It is more natural to suppose that the ascending hot current of air from the island sweeps the dust upwards, from the surface of the worn volcanic rocks, and that, when scattered abroad in the atmosphere, it is again carried back to the island by the cool currents from the sea. A similar phenomenon is observable in Northern Chile, where, however, the dust, which falls in considerable quantities, is light-coloured, as if it were the produce of volcanic ashes.

"The geology of this island," says Mr. Darwin, "is the most interesting part of its natural history. On entering the harbour, a perfectly horizontal white band, in the face of the sea cliff, may be seen running for some miles along the coast, and at the height of about forty-five feet above the water. Upon examination, this white stratum is found to consist of calcareous matter with numerous shells embedded, such as now exist on the neighbouring coast. It rests on



ancient volcanic rocks, and has been covered by a stream of basalt, which must have entered the sea when the white shelly bed was lying at the bottom. It is interesting to trace the changes, produced by the heat of the overlying lava, on the friable mass. For a thickness of several inches it is converted into a firm stone as hard as the best freestone; and the earthy matter, originally mingled with the calcareous, has been separated into little spots, thus leaving the limestone white and pure. In other parts, a highly crystalline marble has been formed. The beds of lava rise in successive gently sloping plains, towards the interior, whence the deluges of melted stone originally proceeded."

St. Paul's rocks, a cluster not quite three quarters of a mile in circumference, rising abruptly from the midst of the Atlantic, are remarkable from the circumstance that they show no signs of volcanic origin. The sea-weed which covers their sides gives food and shelter to great quantities of fish: these, when caught with the line, could not be saved by the seamen from the sharks without a constant struggle. These rocks are thickly inhabited by sea birds. Near many of the nests of the Noddy (a species of tern), was seen placed a small flying-fish, brought probably by the male bird for its partner. As often as the birds were disturbed, a large active crab issued from the crevices of the rock, and stole the fish. Not a single plant, not even a lichen, grows on this islet, yet it is inhabited by several insects and spiders. Hereupon Mr. Darwin remarks, "the often repeated description of the first colonists of the coral islets in the South Sea is not probably quite correct; I fear it destroys the poetry of the story to find, that these little vile insects should thus take possession, before the coco-nut tree and other noble plants have appeared."

The greater number of these insects are the parasitic followers of the wild fowl, and may therefore be supposed to have been conveyed by the latter to the isolated rocks of the ocean. The origin of the spiders may appear more difficult to explain. But, besides the chances of their being drifted thither, or of also being conveyed by the birds, it is certain that there are species of spiders endowed with the power of making long aerial voyages.

"One day," says our author, "the weather having being fine and clear, the air was full of patches of the flocculent gossamer web, as on an autumnal day in England. The ship was sixty leagues distant from the land, in the direction of a steady though light breeze. Vast numbers of a small spider, about one-tenth of an inch in length, and of a dusky red colour, were attached to the webs. There must have been, I should suppose, some thousands on the ship. The little spider when first coming in contact with the rigging, was always seated on a single thread, and not on the flocculent mass. This latter seems merely to be produced by the entanglement of the single threads. The spiders were all of one species, but of both sexes, together with young ones. The little aeronaut, as soon as it arrived on board, was very active, running about; sometimes letting itself fall, and then reascending the same thread: sometimes employing itself in making a small and very irregular mesh between the ropes. It could run with facility on the surface of water. When disturbed it lifted up its forelegs in the attitude of attention. On its first arrival it appeared very thirsty, and with exerted mamillæ drank eagerly of the fluid. Its stock of web seemed inexhaustible. While watching some that were suspended by a single thread, I several times observed, that the slightest breath of air bore them away out of sight in a horizontal line. On another occasion, under similar circumstances, I repeatedly observed the same kind of small spider, either when placed, or having crawled, on some little eminence, elevate its abdomen, send forth a thread, and then sail away in a lateral course, but with a rapidity which was quite unaccountable."

If, while the thread is wafted by the air, the spider were to run along it, the velocity of the insect would undoubtedly surprise the eye, so

long as its proper motion were undetected. It might also communicate a momentum to the floating thread by this manoeuvre, which there is, therefore, good reason to suspect, is actually put in practice. The number of spiders, compared to other insects, is very much greater in Brazil than in England. The Saltigrade, or jumping spiders, are particularly numerous, and of a great variety of species. Among the artifices resorted to by some of the spider kind for their protection, the following, observed by our author to be practised by a large Epeira, is one of the most curious. "When disturbed, standing in the middle, it violently jerks the web, which is attached to elastic twigs, till at last the whole acquires such a rapid vibratory movement, that even the outline of the spider's body becomes indistinct."

Of the country round Bahia our author says: "Delight is a weak word to express the feelings of a naturalist, who, for the first time, has been wandering by himself in a Brazilian forest. Among the multitude of striking objects, the general luxuriance of the vegetation bears away the victory. The elegance of the grasses, the novelty of the parasitical plants, the beauty of the flowers, the glossy green of the foliage, all tend to this end. A most paradoxical mixture of sound and silence pervades the shady parts of the wood. The noise from the insects is so loud, that it may be heard even in a vessel anchored several hundred yards from the shore; yet within the recesses of the forest a universal silence appears to reign."

Luxuriant and enchanting as are the forests of Brazil, they have been so frequently and so well described of late years, that we shall pass them over in silence, and hasten to regions less frequently explored by the naturalist. Neither shall we devote much space to the natural history of the Banda Oriental, or the Buenos Ayrean pampas. Indeed, it may be inferred, from Mr. Darwin's descriptions, that the strangest animals inhabiting those countries are its human possessors. He thus sketches their general outline:

"At night we stopped at a pulperia, or drinking-shop. During the evening a great number of Gauchos came in to drink spirits and smoke cigars: their appearance is very striking; they are generally tall and handsome, but with a proud and dissolute expression of countenance. They frequently wear their moustaches, and long black hair curling down their backs. With their brightly-coloured garments, great spurs clanking about their heels, and knives stuck as daggers (and often so used) at their waists, they looked a very different race of men from what might be expected from their name of Gauchos, or simple countrymen. Their politeness is excessive; they never drink their spirits without expecting you to taste it: but, whilst making their exceedingly graceful bow, they seem quite as ready, if occasion offered, to cut our throat."

Among the uneducated inhabitants of the Banda Oriental, Mr. Darwin's pocket compass caused unbounded astonishment. At one place, a young woman, who was ill in bed, sent to in-treat him to visit her, and to show her the compass. He was offered a dollar for a single Promethean match. His washing his face in the morning was thought to be a very unaccountable practice; and, with many other oddities of a like kind, caused much surprise. "If their surprise," says Mr. Darwin, "was great, mine was still greater, to find so much ignorance among people who possessed their thousands of cattle, and *estancias* of great extent." In the course of one of his excursions, he visited the estancia of Don Juan Fuentes, a rich proprietor, with whom he had no acquaintance; but, in these wilds, the stranger is sure of a hospitable reception under every roof. On such occasions the following form is observed: the wayfarer riding up to the house gives the salutation, "Ave Maria," to which is replied, from within, "Sin pecado concebida" (conceived without sin). He is then invited in, and obtains leave, as a matter of course,

to spend the night there. A room is assigned to him, and he makes his bed with his saddle-cloths.

"After witnessing," says our author, "the rude wealth displayed in the number of cattle, men, and horses, Don Juan's miserable house was quite curious. The floor consisted of hardened mud, and the windows were without glass: the furniture of the sitting-room boasted only of a few of the roughest chairs and stools, with a couple of tables. The supper, although several strangers were present, consisted of two huge piles, one of roast beef, the other of boiled, with some pieces of pumpkin; besides this latter, there was no other vegetable, and not even a morsel of bread. For drinking, a large earthenware jug of water served the whole party."

In the alluvial deposit of the pampas, on the banks of the Parana, of the Uruguay, and on various parts of the coast, Mr. Darwin found vast quantities of fossil remains, including the bones of the megatherium, mastodon, toxodon, gigantic armadillo, and other animals of extinct species and great size. Beneath the stony plains of Patagonia, he found also the bones of an extinct llama, which was quite as large as the camel. It is certain that the zoology of America has undergone a great change within a period recent, with respect to the revolutions of the earth's surface. The numerous large animals which once inhabited it, have given way to others of inferior magnitude. Nor can we suppose that the nature of the country was materially different during that former zoological period from what it is at present, or that the pampas were then all mud. The curious fact that the horse, which, since its re-introduction by the Spaniards, has multiplied so exceedingly in the pampas, was a numerous species under the old order of things, goes far to disprove any considerable change of soil or climate. In the pampas, Mr. Darwin had convincing evidence of an extraordinary phenomenon, which he thus relates:—

"We were here told a fact, which I would not have credited, if I had not had partly ocular proof of it, namely, that, during the previous night, hail as large as small apples, and exceedingly hard, had fallen with such violence as to kill the greater number of the wild animals. One of the men had already found thirteen deer lying dead, and I saw their *fresh* hides; another of the party, soon after my arrival, brought in seven more. Now, I well know, that one man, without dogs, would hardly have killed seven deer in a week. The men believed that they had seen about fifteen dead ostriches (part of one of which we had for dinner); and they said that several were running about evidently blind in one eye. Numbers of smaller birds, as ducks, hawks, and partridges, were killed. I saw one of the latter with a black mark on the back, as if it had been struck with a paving-stone."

Mr. Darwin's observations relative to the structure of the pampas, the plains of Patagonia and Chile, all lead him to the conclusion that the South American continent has risen from the depths of ocean within a very recent geological period. This is an opinion which he enforces with his usual ability, and more than usual copiousness of argument. But our limits will not allow us to state in detail the facts connected together by this hypothesis. We shall content ourselves with observing, that if the shingly plains of Patagonia, each several band of which, in succession, is supposed to have been at one time the strand of the sea shore, encroached on the ocean at the rate of a foot annually, (and Mr. Darwin deprecates strongly the supposition of any but very gradual changes,) then at least one million of years must have elapsed since the commencement of the tertiary period, when the waves of the sea washed the feet of the Cordillera of the Andes!

Tierra del Fuego is poor in animal productions, and its vast forests exhibit but few vegetable species. The outward luxuriance of those gloomy woods hardly conceals the enormous

mass of decay within. The waters of the Magellanic regions contain a greater variety of productions: of these, the kelp, or *fucus giganteus* of Solander, deserves to be particularly mentioned. It grows on every rock from high-water mark to a great depth, both on the outer coast and within the channels, and is thus of the greatest importance as a buoy, its long floating branches indicating the vicinity of danger. There seems no reason to question the accuracy of Captain Cook's statement, that this plant sometimes attains the length of at least 60 fathoms, or 360 feet. It is astonishing to see how it flourishes in the midst of those breakers of the western ocean, which no rock, however hard, could long resist. Respecting its importance in the chain of organized being, Mr. Darwin expresses himself as follows:—

"The number of living creatures of all orders, whose existence intimately depends on the kelp, is wonderful. A great volume might be written, describing the inhabitants of one of these beds of seaweed. Almost every leaf, except those that float on the surface, is so thickly encrusted with corallines, as to be of a white colour. We find exquisitely delicate structures, some inhabited by simple hydra-like polypi, others by more organized kinds, and beautiful compound Ascidia. On the flat surfaces of the leaves, various patelliform shells, Trochi, uncovered molluscs, and some bivalves are attached. Innumerable crustacea frequent every part of the plant. On shaking the great entangled roots, a pile of small fish, shells, cuttle fish, crabs of all orders, sea eggs, star fish, beautiful Holothuræ, (some taking the external form of the nudibranch molluscs), Planariæ, and crawling nereidous animals of a multitude of forms, all fell out together. Often as I recurred to a branch of the kelp, I never failed to discover animals of new and curious structures.

"I can only compare these great aquatic forests of the southern hemisphere with the terrestrial ones in the intertropical regions. Yet, if the latter should be destroyed in any country, I do not believe nearly so many species of animals would perish, as under similar circumstances would happen with the kelp. Amidst the leaves of this plant numerous species of fish live, which nowhere else would find food or shelter; with their destruction, the many cormorants, divers, and other fishing birds, the otters, seals, and porpoises, would soon perish also; and lastly, the Fuegian savage, the miserable lord of this miserable land, would redouble his cannibal feast, decrease in numbers, and perhaps cease to exist."

The volcano of Osorno, when seen in activity from the deck of the *Beagle*, eighty miles off, presented a most magnificent spectacle. At midnight it appeared like a bright star, which gradually increased in size for three hours; and then, with the aid of a telescope, dark objects could be seen, in constant succession, in the midst of a red glare of light, to be thrown up and to fall down again. It is said that when the Corcovado (a volcano 160 miles south of Osorno) is in eruption, great masses thrown upwards, burst in the air, assuming fantastical forms, as those of trees. Some idea of the immense size of these propelled masses may be formed from the fact, that they are visible with the naked eye from the high land behind San Carlos, in the island of Chiloe, ninety-three miles from the Corcovado. The various phenomena accompanying the great earthquake at Concepcion, to which we have already adverted, were the objects of Mr. Darwin's earnest investigations; and he terminates his discussion of them with the following opinion:—

"We see a permanent elevation of the land, renewed activity through habitual vents, and a submarine outburst (near the island of Juan Fernandez), forming parts of one great phenomenon. The extent of country throughout which the subterranean forces were thus unequivocally displayed, measures 700 by 400 geographical miles. From several considerations which I have not space here to enter on, and especially from the number of intermediate points,

whence liquefied matter was ejected, we can scarcely avoid the conclusion, however fearful it may be, that a vast lake of melted matter, of an area nearly doubling in extent that of the Black Sea, is spread out beneath a mere crust of solid land."

To a zealous geologist, the Cordillera of the Andes, with its grand array of volcanoes, many of which are still active, and its narrow strip of western coast, constantly trembling from the blows, which raise it from the sea, is hallowed ground. Nothing could deter Mr. Darwin from crossing the high chain by the Uspallata Pass to Mendoza, though the season was rather late, and a fall of snow would have been fatal to the traveller caught between the two great ridges. The road by the Uspallata Pass winds round the southern side of the great peak of Aconcagua, which has been ascertained, by the careful measurements of Capt. Fitzroy, to have an absolute height of 23,000 feet, and must, therefore, henceforth rank as the highest point of the Andes. We cannot stop to descant on the dreariness of the scene within the mountains, and the steepness of the roads; these, with the patience of the mules, and other particulars of that class, have been already full often described. When our traveller found that the lower chain of hills running parallel to the great Cordillera, was composed of submarine lavas and sedimentary deposits, resembling closely the horizontal beds on the shores of the Pacific, he began to look around for silicified wood, which is characteristic of those formations; and he was soon gratified in an extraordinary manner. He saw on a bare slope, at an elevation of probably 7,000 feet, some snow-white projecting columns, which on examination proved to be petrified trees, eleven being silicified, and from thirty to forty converted into coarsely-crystallized white calcareous spar. These trees have been pronounced by Mr. Robert Browne to have belonged to the Araucarian tribe, but with some points of affinity with the yew. It is worth while to observe the fearlessness with which Mr. Darwin develops the consequences of his discovery.

"It required," he says, "a little geological practice to interpret the marvellous story, which this scene at once unfolded: though I confess I was at first so much astonished that I could scarcely believe the plainest evidence of it. I saw the spot where a cluster of fine trees had once waved their branches on the shores of the Atlantic, when that ocean (now driven back 700 miles) approached the base of the Andes. I saw that they had sprung from a volcanic soil, which had been raised above the level of the sea, and that this dry land, with its upright trees, had been subsequently let down to the depths of the ocean. There it was covered by sedimentary matter, and this again by enormous streams of submarine lava—one such mass alone attaining the thickness of a thousand feet; and these deluges of melted stone and aqueous deposits had been five times spread out alternately. The ocean which received such mass must have been deep; but again the subterranean forces exerted their power, and I now beheld the bed of that sea forming a chain of mountains more than 7,000 feet in altitude. Nor had those antagonist forces been dormant, which are always at work to wear down the surface of the land to one level; the great piles of strata had been intersected by many wide valleys; and the trees, now changed into silex, were exposed projecting from the volcanic soil, now changed into rock, whence, formerly, in a green and budding estate, they had raised their lofty heads. Now, all is utterly irreclaimable and desert; even the lichen cannot adhere to the stony casts of former trees. Vast and scarcely comprehensible as such changes must ever appear, yet they have all occurred within a period recent, when compared with the history of the Cordillera; and that Cordillera itself is modern as compared with some other of the fossiliferous strata of South America."

The Galapagos archipelago, situated under the equator, at a distance of between five and six hundred miles westward from the coast of Ame-

rica, are altogether volcanic, and contain about ten little islands, at least 2,000 craters. Its natural history is extremely remarkable; the cluster being a little world in itself, and the greater number of its inhabitants, both vegetable and animal, being found nowhere else. The birds were found to be quite ignorant of man, and so tame, that they did not even understand what was meant by stones being thrown at them, and allowed themselves to be approached so as to be struck with a stick. An aquatic lizard, about three or four feet long, and of a most hideous appearance, is the most singular production of these shores. It seems to feed exclusively on seaweed, and to be quite harmless.

Passing by the Queen of Islands, Tahiti, and the Australian shores, we shall next alight on the Keeling Islands, for the sake of studying the nature of those wonderful fabrics of coral, raised to the surface of the ocean, where other agencies fit them to become the habitation of men, by the minute labours of a polypus. For the history of the coral animal, indeed, and the progress of its architecture, we are obliged to look forward to a promised work of Mr. Darwin's, and must for the present rest satisfied with some striking remarks on the natural history of those low islands and some sagacious and exceedingly bold speculations on the distribution and character of coral reefs in general. The Keeling Islands are only raised to that height to which the surf can throw fragments, and the wind heap up sand. Their protection is due to the outward and lateral increase of the reef which thus breaks the sea. The aspect and constitution of these islets at once call up the idea, that the land and the sea are here struggling for mastery. Although the former seems to have got the upper hand, the denizens of the latter element have not yet resigned their claim. In every part, hermit crabs, of more than one species, are met with, carrying on their backs the shells for their houses, stolen from the neighbouring beach. As the vegetable productions on the islands have been all drifted thither by the waves of the sea, they are extremely miscellaneous; so that "the Flora" has quite the character of a refuge for the destitute; of twenty species of plants, nineteen belong to different genera, and these again to no less than sixteen orders. The coco-nut is, as might have been expected, the chief, though not the only tree.

On the Keeling Islands is a crab of monstrous size, which feeds on coco-nuts. It contrives to perforate the upper end of the nut by the hammering of its heavy claw; then with its narrow pincers it extracts the white albuminous substance. These crabs are good to eat, and in the larger of them is a mass of fat, which sometimes yields a quart of good oil. We must not forget to mention a species of coral which has the property of stinging. Still more worthy of notice are two species of fish, of the genus Sparus, which feed exclusively on coral. With their strong bony jaws, they graze on the tops of the coral branches. Let us now listen while Mr. Darwin tells his impressions of the scene, and the thoughts they awakened in him:—

"I can hardly (he says) explain the cause, but there is to my mind a considerable degree of grandeur in the view of the outer shores of these lagoon islands. There is a simplicity in the barrier-like beach, the margin of green bushes and tall coco-nuts, the solid flat of coral rock, strewed here and there with great fragments, and the line of furious breakers, all rounding away towards either hand. The ocean, throwing its waters over the broad reef, appears an invincible, all-powerful enemy, yet we see it resisted and even conquered by means which at first seem most weak and inefficient. It is not that the ocean spares the rock of coral; the great fragments scattered over the reef, and accumulated on the beach, whence the tall coco-nut springs, plainly bespeak the unrelenting power of its waves. Nor are there any periods of

repose granted. The long swell, caused by the gentle but steady action of the trade-wind, always blowing in one direction over a wide area, causes breakers, which even exceed in violence those of our temperate regions, and which never cease to rage. It is impossible to behold these waves without feeling a conviction that an island, though built of the hardest rock, let it be porphyry, granite, or quartz, would ultimately yield, and be demolished by such irresistible forces. Yet these low, insignificant, coral islets stand, and are victorious; for here another power, as antagonist to the former, takes part in the contest. The organic forces separate the atoms of carbonate of lime one by one from the foaming breakers, and unite them into a symmetrical structure. Let the hurricane tear up its thousand huge fragments; yet what will this tell against the accumulated labours of myriads of architects at work night and day, month after month? Thus do we see the soft and gelatinous body of a polypus, through the agency of the vital laws, conquering the great mechanical power of the waves of an ocean, which neither the art of man, nor the inanimate works of nature, could successfully resist."

These specimens will be sufficient to exhibit the variety of matter contained in Mr. Darwin's journal, and of the vigour of mind which animates it.

Before we close these volumes, it is incumbent on us to mention that the appendices to the surveyors' journals contain, in tables of meteorological, magnetical and astronomical observations, a vast fund of valuable materials: and that, in respect to these accompaniments, as well as the maps (among which John Arrowsmith's wonderful map of South America deserves especial mention) and engraved illustrations, no pains nor expense have been spared to render the work deserving of the place, which it is, on every account, entitled to hold, among the best works of its kind in our language.

*Practical Philosophy of the Muhammadan People*; being a Translation of the Akhlak-i-Jalaly, with References and Notes by W. F. Thompson, Esq. Published by the Oriental Translation Committee.

THERE has been no work published since Sale's translation of the Koran, which so clearly elucidates the mental and philosophic character of Mohammedanism, as the volume now before us. The day has gone past when the vague cry of mysticism and licentiousness served as an excuse for ignorance of the laws and habits of action belonging to a creed whose influence is still dominant from the Atlantic to the Pacific, and whose institutions would in the Middle Ages have gained by a comparison with our own. Now, when the Osmanli empire trembles on its base, when Persia is sunk in decrepitude, when the inheritor of Baber's throne, the once mighty Great Mogul, is a pensioner on a company of merchants, and the lineal descendant of Timûr Lenk a beggar in the streets of Bokhara, it is easy to say that Mohammedanism contained within itself the elements of weakness and decay; but we must remember that there was a time when it seemed far from improbable that the crescent would surmount the cross at St. Peter's, and the voice of the muezzin be heard from the towers of Notre Dame. The ethical system voluntarily adopted by successive dynasties, and received by conquering races without compulsion, is something more than a matter of speculative curiosity, it is a necessary portion of that enlightened study of humanity which tends to raise history to the dignity of a science.

The 'Akhlak-i-Jalaly' is universally recognized as the best digest of the moral principles which form the basis of the social system in the East. It was written in the fourteenth century, by Asa'ad, the favourite minister of Hasan Beg, sultan of Mesopotamia. It contains an able analysis of the motives and opinions by which a

third part of the human race has for ages been actuated; we find in it the philosophy which the Greeks borrowed from the East carried back with their developements; we also discover the elements of the sciences preserved in the Byzantine empire, and the germs of the scholastic philosophy which held dominion over Europe in the Middle Ages. It is divided into three books, which treat of the individual, the domestic, and the political state of mankind. Of a work at once so extensive and so condensed, it would be impossible to give an analysis within reasonable limits; but we may direct attention to the principle on which the theory of the system is based, and the moral canon on which the practical part of the work is conducted.

Asa'ad declares that the end and purpose of man's existence is to act as God's vice-regent on earth. This purpose is to be realized by the combination of knowledge and practice; and it is the object of morals to set forth the rule and method of acquiring them. This moral rule or canon is substantially the same as the Aristotelian doctrine of extremes; propriety is determined by striking a balance between the claims of others and ourselves. It is obvious that this canon admits a virtual proximity of right to wrong, and falls far short of the highest forms of evangelical virtue; but at the same time it is more practical than the modern rule of general consequences.

Mr. Thompson has prefixed to the translation an examination of the origin and nature of Oriental philosophy, and in a series of notes has compared the ethical system developed in the 'Akhlak-i-Jalaly' with those of the great schools of philosophy in Greece and Italy.

*Self-Culture.* By W. E. Channing. Wiley & Putnam.

*Lecture on War.* Same author, and publishers. As we heretofore (No. 512, &c.) fully expressed our opinion of the literary claims of Dr. Channing,—the foremost man of his age and nation,—we should have left these small, though useful tracts, to have found their own way, had it not been for a somewhat contemptuous off-hand review on Channing's style and criticism in the last number of the *Edinburgh*. It needs no ghost to tell us who is the writer, though how Dr. Channing can have provoked his ill-humour, we are at a loss to conjecture; unless, indeed, it be by the undeviating consistency of his life. For our own part, with all the faults imputed to the Doctor, we should heartily rejoice, if many of the works we are called on to examine possessed a tinge of his vigorous thought, or a half of his precision of style. We perfectly agree with the critic, that simplicity and perspicuity are great merits; but they are not all that is requisite. These qualities are not wanting in many writers who possess no other. In these railroad times of authorship, they are, indeed, most easy of acquirement; and this very facility leads to superficial thinking. We further admit, that Dr. Channing is more elaborate and ostentatiously ornate than, in the simplicity of our taste, we altogether admire: but we believe this to arise less from a systematic search after a nobler style, misleading into affectation, than from his position as a pulpit orator. It is a very prevalent opinion, that church eloquence ought to be more pompous, sonorous, and metaphorical than an ordinary discourse, or a parliamentary speech. Preachers, too, are prone to listen complacently to their own voice—to wait, as it were, for the echo—and are thus apt to fall into the Cambyzes' vein: but, if Dr. Channing has not altogether kept clear of these influences, he has certainly not been misled by them in a degree which called for special and severe reprobation. If, however, few will concur in the censure passed on the Doctor, fewer still, we think, will agree with the reviewer in his low estimate of Milton's prose.

The first of these little tracts—'Self-Culture'—is of general and permanent interest; but as at least half-a-dozen reprints have been already hurried out in this country, it requires no recommendation from us.

The 'Lecture on War,' however, though superior in many respects, is, to a certain extent, special and local, and therefore deserving a few words. We observe that some of Dr. Channing's friends are of opinion that he is mixing himself too much in the common *mêlée*. Some of his critics, who can say nothing to his arguments, now begin to call him a "pamphleteer"—a sort of second Abbé du Pradt: and yet, in truth, the Doctor's pamphlets answer his purposes far better than books could, just as a steamship will often be found more serviceable than a man-of-war. They can be brought out speedily and seasonably, and made to tell just when and where they are wanted. We have an instance, in this 'Lecture on War,' just culminated. The danger, if there ever was any, has gone by, and would have done so without his pamphlet. Still, it *might* have been influential in a case of protracted excitement; as his Texas publication, and others, certainly were. The reader must bear in mind how these things circulate in America; the universal reading ability—the thousand newspapers, and more, which send the author's opinions to every warehouse and workshop, every tavern and steam-boat cabin throughout that country. The impression thus made, when the "iron is hot," is not, at any rate, lost for future occasions. The great truth enters into the public mind: it modifies, in good time, that public opinion which hereafter is to be, and, in America, is to govern. The subject of war, for example, must unfortunately often come under public consideration: the world is neither so good nor so wise yet, as to justify a man of common sense in believing otherwise. On the subject of the war which lately threatened both nations, "for a tract of wild land, perhaps not worth the money it has cost us within a few weeks past," the Doctor observes that it would be the greatest calamity *next* to civil war. "We are of one blood: we speak one language: we have a common religion: *we have the noble bond of free institutions; and to these two countries, above all others, is the cause of freedom entrusted by Providence.*" Then, he adds, the whole civilized world would feel such a war. The war itself would spread, and no wisdom can predict its issues: and all these evils at a moment of singular interest and promise to society: after an unprecedented peace, when civilization seems to be renewed—the nations everywhere waking up—industry and knowledge taking the place of war—new facilities of communication making a social brotherhood of the world—and "the greatest of all social revolutions," the elevation of the people, steadily if not rapidly going on.

The causes of this long peace are then discussed: among other things, exhaustion, increasing trade and commerce, the fear of internal convulsions; besides which, the Doctor allows some little credit to the Cabinets for maintaining what he calls the balance of power. Still he is not over-confident in the permanence of these causes. The prosperity of peace itself is too apt to generate vice, tumult, and war; and "the spirit of revolution has more or less penetrated the whole civilized world." In the next contest, he observes, a new idea, a new party, will arise and fight. "Absolutism must measure swords with liberalism, despotism with free constitutions."

Thus much for what may be called the principles of this publication, and for what is of immediate application. We shall subjoin a more general but very striking passage, indicating the Doctor's opinion of the military profession. Speaking of the causes of war, he says:—

"Men's sensibility to the evil of war has been very much blunted by the deceptive show, the costume, the splendour in which war is arrayed. Its horrors are hidden under its dazzling dress. To the multitude, the senses are more convincing reasoners than the conscience. In youth, the period which so often receives impressions for life, we cannot detect, in the heart-stirring fife and drum, the true music of war, the shriek of the newly wounded, or the faint moan of the dying. Arms glittering in the sunbeam do not remind us of bayonets dripping with blood. To one, who reflects, there is something shocking in these decorations of war. If men must fight, let them wear the badges which become their craft. It would shock us to see a hangman dressed out in scarf and epaulette, and marching with merry music to the place of punishment. The soldier has a sadder work than the hangman. His office is not to despatch occasionally a