Uvillé, a Spaniard, seeing the decline of the American mines, from the insufficient power of drainage in the old works, was desirous of adopting the English method of pumping by steam. For this purpose he came to London in 1811, but his efforts were baffled by the difficulty of transporting such cumbrous machinery over the mountain districts, and the diminution of power which the atmospheric engines would sustain when worked in the rarified atmosphere of the elevated mine countries. When on the point of departing from England, frustrated in his object, he chanced to see a finished working model of Trevithick's engine, exposed for sale in the shop of Mr. Roland, in a street near Fitzroy-square. This model Uvillé carried to Peru, and to his inexpressible joy he had the pleasure of seeing it work with success on the high ridges of Pasco. Again encouraged in his favourite plan, he entered into partnership with two rich merchants of Lima, and obtained from the Viceroy of Peru the privilege of working some of the neglected mines. He once more started for England, and while on his voyage, talking with Mr. Teague, a fellow-passenger, of his anxiety to discover the inventor of the model, he was most agreeably surprised to hear Mr. Teague reply, "that Trevithick was his near relation, and that he could bring them together within a few hours of their arrival at Falmouth."

Uvillé continued with Trevithick for some months at Camborne, profiting by his instructions; he then made a tour under his guidance in several of the mining districts, and afterwards went to Soho to consult Boulton and Watt. Whether, however, it was their jealousy of Trevithick, or their genuine want of resource on the subject, they gave Uvillé no encouragement as to the success of his enterprise. The great elevation of the mines, the difficulty of the precipitous roads, and the absence of means of transporting heavy masses of machinery, appeared to those engineers insurmountable obstacles, and disinclined them to engage in such a difficult undertaking. On the refusal of these capitalists to assist, Trevithick himself undertook to furnish the necessary engines; and in September, 1814, Uvillé embarked at Portsmouth for Lima, with three Cornish miners, and nine of Trevithick's engines.

Long before this period Trevithick had married a Miss Harvey, a lady of good connections; her brother subsequently acquiring a large fortune. By her Trevithick had several children, and it will prove at once the love he entertained for her, and his spirit of perseverance even in trifles, that during his long courtship he never missed walking every evening several miles to visit her. Dissensions had, however, arisen in his family, and he was more prepared to engage in that distant career to which he was now invited.

Uvillé was received at Lima with the greatest honours and rejoicings, and landed with his cargo under a royal salute. It was not until the middle of 1816 that he was able to surmount the local difficulties of transport, and place the first engine in operation. Trevithick, however, had nobly armed him against the antagonist obstacles, and all that his ingenuity could suggest had been put into practice. The machinery, simplified to its greatest extent, was so divided as to form adequate loads for the weakly llama, and the beams and boilers made in several pieces were transported over precipices, where a stone may be thrown for a league. The engine erected at Tauricocha, in the province of Tarma, was put into operation, and in the presence of the government deputies drained the first shaft of the mine of Santa Rosa, one of the Pasco district. The greatest anticipations were created, and amid the profusion of honours showered upon the projectors, nothing was wanted but the presence of the meritorious inventor himself.

Trevithick had in these latter years been fully as active in his contributions to the cause of science, as in any previous portion of his career. It was he who suggested the improvement on steam boats by propulsion at the stern, which is now the subject of experiments at London and at Liverpool. He considered that a spiral wheel revolving at the stern of a vessel was preferable to the use of side paddle wheels, and we believe that a vessel something on this principle is now about to make the trial voyage across the Atlantic.

Another contribution of his to steam locomotion was his revival of giving motion to the engines by means of the re-action of the steam made to spout against the atmosphere.

In 1815 he effected a great improvement in his high pressure engines, by forming the piston so that a ring of water should run all round it, and render the whole air-tight; as he found in practice that a very moderate degree of tightness in the packing produces this result.*

Trevithick was now actively engaged in England preparing for his departure. He had constructed several new engines, and an apparatus for the Peruvian Mint; and his attention was directed to an object of the greatest importance, to remedy the growing scarcity of quicksilver, by constructing furnaces for purifying the silver ore by fusion. At last, in October, 1817, Trevithick, Robinson Crusoe like, gave up all his property in England, and leaving it to his wife and children, set sail for Peru.

* Historical and Descriptive Anecdotes of the Steam Engine, by Stuart, p. 320.

In February, 1817, he arrived at Lima, where his presence excited the utmost enthusiasm. He was received by the government and the people with the greatest honours, while the official announcement of his arrival in the Gazette created the highest expectations of the whole population. He had immediately an audience of the Viceroy, and the Lord Warden of the mines was directed to escort him with a guard of honour to the seat of his future labours. The principal men of the mining district came many days' journey to Lima to see and welcome him, and all exerted themselves to testify their esteem for the well-deserving Don Ricardo Trevithick. Never, perhaps, was European so well received in the New Indies; it was not Las Cases coming to rescue an injured population from oppression, but it was a man of science who had arrived to augment their old resources, and to create new mines of wealth. It was the first benefit which they had received from the Old World, and it is not surprising that an ardent people received Trevithick with as great enthusiasm as Columbus had once awoke in Spain.

The exertions of this great man were crowned with success, and he was equally rewarded by their profitable return, and the gratitude of the people. The produce of the mines augmented to an unexpected degree, and the coining machinery was increased six-fold; his companions united in expressing their obligations to him, and the authorities were not remiss in showing how they appreciated them. We understand that he was invested with the title of a marquis, and was created a grandee of the Spanish empire, while the Lord Warden of the mines even proposed to erect his statue in massy silver.

In these employments Trevithick was engaged for many years; but at last the political dissensions, and his own wandering disposition, induced him to wish to leave the country. This was no easy matter: for the veneration with which he was regarded as a benefactor sent from Heaven, made the people regard his absence as a public calamity, and take every measure to prevent his departure. At last he made his escape, through dangers which few, less adventurous than himself, could have encountered; and, after escaping the terrors of the mountain and the desert, and the arm of the wandering savage, he again arrived safely in England, where he was about the period of the great panic in 1827.

Here he endeavoured to raise capital to carry on some of his colossal projects, but with his usual ill-success—for those who knew his skill, feared the waywardness of his character; and those who did not, were repulsed by the giant nature of his enterprises. It was in vain he urged his own success, and represented the boundless resources of the Andean territory. He had the mortification to find his provision for his own fortune nullified by the ignorance and timidity of those with whom he sought to participate. While in America he had acquired large tracts of land, and on one estate had a mountain of copper ore, which, like the hill mines of Potosi or Montserrat, it would take centuries to exhaust. Here he proposed to construct railways, and, by the aid of capital and machinery, make the shores of the Pacific as great a mart for the produce of the earth, as those of his own native promontory.

Don Ricardo again returned to the New World, and resumed his labours for the benefit of the American people; for, it must be observed, that however he may have been remunerated, and how much so ever he may have desired to advance his own interests, yet the apathy of his countrymen ever prevented him from carrying out his own wishes, or being any other than the great regenerator of American riches. He died, indeed, comparatively poor, and left, we believe, little other inheritance to his family than the grandeur of his name and the glory of his works.

In his person and manners he seemed formed to sustain the arduous contests to which he was destined. The robustness of form, inured by years of toil and fatigue, was reflected by the innate self-confidence of his disposition. Blunt, but not rude, he maintained his opinions with honesty and power, and was only in fault that too frequent success made him adhere to them with pertinacity. In his moral character he maintained with propriety all the social duties. Kind to his family, he was ever ready to make any sacrifice, although the meddling of others may have created dissension in his domestic circle; while as a friend none, perhaps, could be more relied upon, for his feelings of confidence survived repeated disappointments and betrayals. His mental powers are best appreciated by the events of his life, for we may be assured that if no one be great without some divine assistance,* so few have done remarkable things without having in some degree participated in their greatness. His genius was of the highest order, while those difficulties which his invention could not dissolve were overcome by his perseverance. His self-education also allowed him to borrow little from

* Nemo unquam magnus fuit sine aliquo afflatu divino,—*Cicero*.