Le Gendre, C.W. *Reports on Amoy and the island of Formosa*. Washington: Government Printing Office, 1871.

# Formosa

## I.

[P. 26] Your Excellency may have noticed in my annual report for 1867-'68, to the Hon. Secretary of State, a copy of which I had the honor to submit, a passage in which I allude to an effort made by me, in April, 1868, to visit the South Bay of Formosa, with a view of strengthening the friendly intercourse that I had inaugurated in 1867 with the aborigines; but the state of the weather not permitting that I should venture as far as I desired to go, I was compelled to return before I could gain my purpose. This year I was more fortunate. Leaving Takao on the 21st of February, we arrived, on the 27th, at a point situated about five miles inland, north 22˚ east of the spot where the lamented McKenzie was killed. Though perhaps not strictly in keeping with the nature of an official communication, a few of the details connected with the circumstances of the excursion may not prove unwelcome, as they afford general information regarding the characteristics and inhabitants of the country visited, which I believe no one, except Mr. Pickering, has had fair opportunities of observing and reporting upon. I. Alexander Man, Esq., the Commissioner of Customs for Southern Formosa, and Mr. Pickering, the well-known interpreter, accompanied me, with five Chinese servants. We left in a small junk, special reasons prompting me to select this unusual mode of transportation, although, by the courteous invitation of the admiral, I might have easily procured one of our gunboats.

A great deal has been said, as your Excellency may be aware, respecting the agreement arrived at with the aborigines of Southern Formosa in 1867. Many had expressed doubts not only as to its genuineness, but also as to its effectiveness with other tribes than the Koaluts and the Tallassocks. It had been remarked by her Britannic Majesty's Consul at Foochow, Mr. Sinclair, in a dispatch published at the time, that an arrangement made with one tribe was not binding upon the others. It was also said that it is by no means probable that all the cast-aways would land where the crew of the Rover had been murdered, and those whose misfortune it would be to fall into the hands of ill-disposed tribes would be slain, as of old; that, therefore, the work of pacification begun by me was an endless one, which I should be quite unable to continue, and that instead of being carried away by my dreams, I ought, while I had a force with me, to have inflicted a terrible lesson upon this cruel race. To this I deemed it wiser to make no answer, feeling that time and experience alone would right me in the course I had taken; but sixteen months having elapsed without any casualty occurring, which would test the efficacy of my work, and feeling that I might at any moment be called away from this coast, I determined to force events. Placing myself with

trustworthy persons, in the defenceless condition in which we find cast-aways generally, I proposed to go across the territory of the aborigines, from coast to coast, meet them, and return to our starting point, guided by their own people. I had duly weighed the risks of the adventure, and did not consider that they were very great. I could easily account for the cruel practice of the aborigines against cast-aways, which, under the peculiar notion they have of right and wrong, they must consider as a just requital for past acts of injustice, which they believed themselves to have suffered at the hands of men of our color and race. I have not ascertained from the records of early travels that the buccaneers ever landed at [p. 27] South Bay; but we may infer from the following quotation that they went at least near it. Having related many atrocities committed by the pirates, the author says:

"At this place (Isles of Calabashes, a group situated on the coast of Cambodia) the buccaneers remained a month; after which they cruised in the Gulf of Siam and in several parts of the Chinese Sea, taking all vessels that fell in their way, whether belonging to Spaniards, Portuguese, or natives. The surgeon and Dampier, who against their inclination, had accompanied this mad crew and were sufficiently weary of them, would have escaped here and taken their chance of getting to Sumatra or any other English factory, but they were constrained to remain on board. The adventurers next proceeded to Ponghoo or Pescadores Islands, which in no respect answered their purpose of quiet and security. At the place where they anchored there was a large town occupied by a Tartar garrison. In the charts they possessed, there were laid down a number of islands situated between Luconia and Formosa, and these they hoped to find either uninhabited or only peopled by tribes whom they might plunder with impunity. They steered for them, and, upon the 6th of August (1685,) reached the interesting group known as the Bashee Islands." (Circumnavigation of the Globe. London, 1749.)

In their cruise, the buccaneers must have kept in sight of the South Formosa coast, and, although they might have been prevented, during the prevailing southwest monsoon, from landing at Kwa Siang Bay, nothing stopped them from touching at Liangkiau or at Tillasockang on the east coast, and in 1685 the aborigines were in possession of the lands where Chasiang now lies, the Chinese of Fuhkien having permanently settled there some few years later.

Almost all the feuds, now existing between the different tribes in Southern Formosa, have their origin in quarrels of former generations, and they are likely to last, until one party is exterminated, or reduced to slavery by the other. Padre Sainz, a Catholic missionary near Takao, who has had much experience with the aborigines, told me that a Peppo village, converted to Christianity, has been carrying on a war of that sort against another tribe in the hills for the last one hundred and twenty years. In spite of all the efforts, made lately by the Peppos to bring about an amicable settlement, the mountaineers have refused to make peace, and it is anticipated that the contest will be kept going until they have suffered such reverses as will compel them to come to terms. Whatever, therefore, might have been the origin of the hatred of the aborigines for us, it

is reasonable to suppose that there has been a cause other than a natural one for it. Their ruler, Tauketok, was prompted to put an end to these differences by his fear that he might suffer further from them. His fear was strengthened by the presence of the Chinese forces, and the losses he had lately suffered in his encounter with our sailors. The aborigines do not pretend to have defeated us in the fight in which Lieutenant McKenzie lost his life; but they believe that we retired in despair of ever finding their villages, and thinking that, without danger to ourselves, we could punish them by other means. They were confirmed in this opinion after the crew retired to our ships, when, being three miles off, they cast death among them. Then, what man in his littleness had been able but to outline, Providence had taken care to achieve. The day the crew of the Rover was murdered had been, for the eighteen tribes, the beginning of a series of disasters. Mr. Pickering reported to me, in September, 1867, that they had lost many lives by our shells. Besides, their priestesses believed that, before reembarking, we had thrown a terrible spell over them. In fact, from that date their rice crop had failed, and numbers of their cattle had died. In the midst of a feast, a dispute had occurred among them, and in the fight that followed, two of their warriors had received severe wounds, from which they had since died. Subsequently, a man fishing in the bay had been [p. 28] bitten by a water-snake, expiring, soon after, in terrible agony. Further, a hunting party, going across the place where our projectiles had fallen, picked up a large unexploded shell, which they brought back to the camp-fire. It there suddenly exploded with a terrible noise, killing and wounding many. Men able to accomplish such things are not like others; certainly they are not like the Chinese, who, at the first shot retire; and they are more terrible than the fearless aborigines, for the latter fight their enemies from behind the jungles and carefully retire when too greatly pressed. But we, on the contrary, seem to find new daring in the danger, and rush where we see the fight thickest, as if more at home in its midst. Such beings the natives could not think to conquer, and, must see that it is better to be at peace than at war with them. I could not believe that the aborigines had so soon forgotten what seemed to have left such strong impressions on their minds only two years ago; and my two associates partaking my views, I left without apprehension for our safety.

To return to my subject. After leaving Takao, on the 24th February, we had fine weather until 5 p.m., when it became calm, and we were compelled to anchor for the night off Chetongkah, where we spent a most miserable time, sleeping, after a light meal, under an awning put up by ourselves on the boat deck. We got again under way at 3 a.m., but it soon came to blow a gale of wind, during which we were pretty near being shipwrecked, and although we entered the Bay of Liangkiau, off the town of Sialiao, which is two miles south of Chasiang, (the Liangkiau of the map,) at daylight, we did not land before 12 o'clock.

Sialiao contains about five hundred people, mostly half-castes. The men are fine-looking and well built; the women are robust and well made, but coarse and decidedly unprepossessing. In both males and females the aboriginal element predominates; and I believe that before two generations are over, it will have entirely absorbed the Chinese

-- a most remarkable circumstance, and which, being noted by the side of what has been said of the persistence of the Chinese type among the Mestizos of the Philippines, after many generations, is suggestive of speculations in what relates to the origin of the Formosa races. The inhabitants of Sialiao are mostly engaged in the firewood trade. They obtain it partly from the natives, partly from the jungles on the western coast, south of their village. It is an article of export to Taiwanfoo. Although fertile, the Liangkiau valley, which lies between the high hills to the east of Chasiang and the cliffs on the western coast, hardly produces enough for the local consumption. The staples are rice, groundnuts, sweet potatoes, sugar-cane, and a little hemp; oranges and bananas, and a singular fruit, having the taste of pear, grow wild at certain points better protected against the violence of the wind, on the hills and in the valleys. It is to be regretted that the small river mouth past the town is fast filling up. Where, two years ago, junks of a large size anchored, there is now but a sand-bank, almost high and dry at low tide. The same phenomenon has been noticed, from north to south, along the whole coast, which is rising with unusual persistence and regularity.

We started for the native territory, the next morning, at 10.30 a.m. Our party consisted of two guides, six Chinese coolies, with presents for the tribes, and three of our own servants, also Chinese. For a while we marched a little southeast, following the cliff till we came to the valley of Liangkiau, when we turned more to the east. We soon left behind us the fields, both of the Chinese and half-castes of Chasiang and Sialiao and those of the Hakkas of Poliac, who pay tribute to Tauketok. At one o'clock we arrived at Kootang, a Peppo settlement [p. 29] of the Kootang tribe, where we made a halt. At the sight of hills inhabited by the aborigines, our Chinese coolies became frightened, and declared that they would not go further. We were exceedingly embarrassed, and did, of course, all we could to persuade them. I observed that before they started, they knew where they were going; that they had agreed to come, and now, *nolens volens*, they must follow me; that if the danger of which they spoke was real, I should not venture with them. Seeing my determination, they apparently concluded to remain. But as I was consulting with the Peppo chief they took to their heels without even (a rare thing for a Chinaman to do) claiming their wages; and when I sent after them, they had gone miles. This disappointment caused less delay than I had apprehended. Hakkas coolies were almost instantly procured, and we promptly entered into the mountains. The weather being very stormy, I was unable to take any barometrical observations. But I should judge that the highest point we came to on the road must have been between 400 and 500 feet above the level of the ocean. When we came to that point, for the first time, through the valley where Tauketok resides, we saw the eastern sea only three or four miles distant, (air line;) the valley, afterward remarkably flattened down, being, however, diversified with many torrents. The greater part of it is arable ground, with large clumps of tree-ferns, wild pine-apples, and bamboo. The cocoanuts and tropical palms and huge camphor-trees which are so plentiful eighty miles further north in the interior, a fact of which I took note during this trip, were missing here, owing, doubtless, to the strong sea winds that desolate the island at this narrow point. Monkeys, many in number, were playing on the trees; but

none of the animals, that are said to abound in the country were seen. Among those that my guides named were the leopard, the bear, the elk, the spotted deer, hare, hill cat, and hill goat, the otter, rat, squirrel, and wild boar. The flying squirrel, of a dark mahogany color, and as large as an English fox, which is to be found in Northern Formosa, is not known in the district. There are but a few birds. The road was wide enough for the free traffic of buffalo carts built on Chinese models, which we found afterward to be in use among the aborigines. These wagons are five feet two inches wide, and planted on two solid wheels. They are drawn by three or four bullocks. At 5 p.m., four miles further, we arrived at the largest settlement of the Sabaree tribe. The village, built in the shape of an open wrench, is, I should judge, an hour's walk from the east shore. It is defended by a strong bamboo stockade on each side of a single entrance, through which the cart and the herds of cattle, in which the wealth of the tribe consists, can easily pass.

The natives received us kindly, and without hinderance allowed us to pitch our tent on the square of the village. Yet our servants at the sight of the long hair, well known to them, that ornaments the spear of our hosts near the head, were much frightened. We endeavored to tranquilize them, and, being very weary, retired to our tent.

Early next morning we sent a messenger to Tauketok, announcing our arrival. But it was some time before he returned; and we were, I confess, almost to the point of losing our patience when the chief's brother made his appearance. He said that the tribe had gone hunting, a few days previous, in the hills, and that they were not to return before the next morning. There was no alternative but to wait, and, as a way to pass the time, we accepted the invitation of Esuck, the Sabaree chief, to visit him in his own house, situated at one hour's walk from the village. Esuck's residence is nicely inclosed. It is built in the customary [p. 30] way, of bamboo and mud, an excellent construction in a country exposed to earthquakes like this. The slate or sandstone, so abundant and so much appreciated by the aborigines to the east of Takao, as building material, is scarce here. The little of it that crops out at places, is much corrugated, and on that account would be of no value to the mason. We could not help admiring the neatness of Esuck's house, and of all its appurtenances.

The court-yard was kept so as to defy the most severe inspection. The inclosures for the cattle would have compared, for cleanness, to whatever of the sort we may have admired in the model farms of Belgium or France. The poultry division was immaculate, and the garden and rice-fields, outside of the farm, were indeed picturesque. The fore front of the building faced toward the east. It is decorated with deer horns placed, at regular intervals, a little below the projection of the roof, which is made of straw, in the style of our ancient cots before the introduction of fire insurances, but the thatch, instead of being fastened together with hemp or willow ligaments, is secured by a light armature of bamboos. There are four rooms in the house. The kitchen is on the south, the sleeping room, comes next, then the state room and another

on the north that we did not see. Each room has a door opening on the front yard, but no windows. The furniture in the room where we were entertained was scanty, consisting of two chairs and one table of Chinese manufacture. A Chinese picture, representing young Chinese women, gorgeously dressed, playing on the guitar, was shown to us as a great curiosity. Opposite, and against the partition, resting on a support of deer horns, stood Esuck's matchlock, so clean and shining that one would have thought it had just come from the hands of the armorer. Against the wall, opposite the door, had been placed the millet of this year. This is to the Formosa aborigines what rice is to the Chinese, almost a sacred product. It is gathered with great ceremony, at a certain day of the year, in presence of the whole tribe. They use it as an article of food, and also to make a mild liquor of a pleasant taste. It was piled up so neatly that I took it at first for a sort of tapestry.

While engaged in investigating all these things, so new to us, Esuck's wife brought us a cup of native liquor; her husband offered us tobacco, and the children threw a handful of incandescent charcoal on the floor for us to light our pipes. The South Formosa tobacco is well flavored. Its name among the aborigines throughout the island is *tamacou*, almost the Spanish word. As it was introduced into China from Manila, I should suppose that it came from the latter place to Formosa. After a short conversation we were asked to partake of the evening repast. But this unfortunately we had to refuse, the night fast coming upon us, and the road to return being somewhat difficult and rocky. We hastened back to our encampment. There we heard that the great chief Tauketok had returned from the hills, and would meet us the next day.

The men of the Sabaree tribe are remarkably well-built and strong. Their eye is straight and large. The hair is cut in the Chinese fashion, terminating behind in a sort of queue, a result of the state of war in which they are with the Chinese; it enables them more easily to cross the enemy's lines in disguise. In this they differ from their neighbors at the North who wear it in the Malay style. Their dress consists of a small black kilt embroidered round the bottom and a sort of Malay jacket, also embroidered down the front and round the arm, and ornamented with silver chains and various small medals or plates of like metal or glass, all of Chinese manufacture. Some, and chiefly the elder men, wore, beside, an outer jacket of deer and leopard skin, and the lower order a [p. 31] turban like the Amoy or Swatow boatmen. Their arms are the bright firelock, short swords, such as I sent last year to the United States, bows and arrows made of bamboos, with iron or brass points, forged by the Hakkas of Poliac. The women are generally neat in their appearance. They are well proportioned and some of them quite fair, with fine faces and a mild expression of countenance. Their hair is divided in the middle, coming on the temple in flat head bands, while the remainder, thrown on the back of the neck, is prettily twisted with silver chains and red cloth, and rolled up twice around the summit of the head so as to form a natural crown, as it was the fashion with our ladies many years ago. They wear short trowsers falling almost to the knees, and jackets that cover their arms and body from the neck to below the waist. It is fastened on the side in Chinese style. Both men and women perforate

their ears, and in this artificial hole, three-quarters of an inch in diameter, they insert an earring made of all sorts of materials, from bamboo to brass and silver, in which case it is of Chinese manufacture.

As far as I could ascertain, the men spend their time in hunting, the women are more given to household cares and agriculture. In this they are helped by families who live among them more in a state of villanage than slavery. They are the descendants of northern men called *Amias*, that must have come at a remote period, for, although they have retained their own language, which they use while among themselves, they speak their masters' dialect very fluently. They are lighter in color than the aborigines of the south, and, as a general thing, taller and more vigorous. In case of war, they form an important addition to the forces of the confederation. There has been, I suspect, much intermarrying between the two races, and to it is due, most likely, the characteristic features that distinguish the Sabarees and generally the tribes under Tauketok from those to the western coast and in the interior, between Mount Morrison and Liangkiau Bay. Although the latter speak the same language, live the same wild life, and thereby are supposed to be of the same origin, they are much inferior to the former in their physical appearance, in their dress, and in intellectual development. Polygamy is not practiced among the southern tribes, and the family ties seem to be strong. Of their religion I learned nothing, except that they have no idols. Neither could I procure any information respecting their civil and political statutes. Their method of reckoning time differs from ours, and our division into hours, months, and years seems unknown to them. Their language, like the Japanese and Malay, abounds in rich and liquid sounds. But of its analogy to other Asiatic tongues, I must postpone any mention, leaving that to others better qualified to decide. The numerical system of nearly all the tribes of Formosa has, as far as I could ascertain, much resemblance to ours. For instance, the following being the first three numbers in the Sabaree dialect, *ita, lousa, torro*, the number twenty will be expressed as it is in our language, by two tens, or *lousa porrou*, thirty by *torro porrou*, &c. The numerals, like any other appellations, differ with each dialect, and there are almost as many dialects as there are tribes, a fact that is easily accounted for by the Formosa natives not having any written language. The numerals of some of the dialects compared, may prove interesting.

[p. 32]

| Numerals | Numerals in the Sabaree dialect | Numerals in the Koalut dialect. (The Koaluts live 4 miles to the south of the Sabarees.) | Numerals in the Taoo-Siah dialect. (The Taoo-Siahs live 30 miles to the south of the Sabarees, nearly on the eastern coast.) | Numerals in the Sibucoon dialect. (The Sibucoons live about 90 miles to the north of the Sabarees, in the centre of the island.) Reported by Mr. Pickering. | Numerals in the dialect of the tribes near Kan Kaw, about 150 miles north of the Sabarees, and 30 miles east of the western coast. | Numerals in the dialect of the tribes near Chiutauki, about 170 miles north from the Sabarees, near the eastern coast. Reported by Mr. J. Dodd. |
|---|---|---|---|---|---|---|
| 1 | Ita | Ita | Ita | Tashang | Cauteau | Cauteau |
| 2 | Lousa | Lusu | Dusah | Lusha | Saheing | Saheing |
| 3 | Torro | Lero | Tourou | Saoo | Tougan | Cheugan |
| 4 | Sipat | Poorok | Sipath | P'at | Payat | Payat |
| 5 | Lima | Zeina | Limah | Tima | Bangan | Mangan |
| 6 | Ainem | Inum | Ounum | Nooin | Taio | Taiew |
| 7 | Pitau | Pichu | Pitoa | Pito | Pitou | Pitou |
| 8 | Allau | Azoo | Azou | Azoo | Sipat | Sipat |
| 9 | Sivah | Siboo | Sivah | Siba | Taiso | Taiso |
| 10 | Porrou | Porrok | Pourouh | Basan | Munpo-Pong | Munpo-Pong |

Of their origin they know nothing, except the Koaluts, who, I understand, profess to have come in a boat, and from the east. The presence of the blue Gulf Stream and the muddy coast-current bound south, off the southern and southeastern coast of Formosa, would give this statement a certain weight, still increased by the fact that in September, 1867, Mr. Pickering ransomed from the Tallassocks a number of Bashee islanders who, while they were fishing in a small boat, a little too far off the coast of one of the Batanes, a group of islands situated about eighty-five miles south of the south-east cape, had been driven on the south-eastern coast of the island by the violence of the current.

Next morning, at the time appointed, Tauketok made his appearance. We at once recognized each other. He seemed glad to see me; and the first thing that he said

was that he had remained the same in his feelings for our people, and he hoped mine had not changed. I told him that those who live where I came from are, in number, equal to the stars in heaven, and, of course, I could not communicate with all; but the men in power there had ratified my action in making peace with him, and would send no ships to Formosa with hostile purpose, as long as the eighteen tribes would respect the understanding we had arrived at a few months previous. He inquired whether I was satisfied that our people would not take up the old quarrel again; to which, my answer was that they would not. He then asked if I had any new friendly propositions to make. I replied that I had none, but that, as our first interview, of necessity, had been very short, I should like him now to express to me, at leisure, and in more precise terms, the main feature of the understanding which was arrived at when we previously met at the Volcano. As regards the flag, he observed that it did not matter what size it was, so long as it was red; and in case of wreck, he would not expect the cast-aways to show it. But when they would do so, they would receive more attention, there being then no doubt left as to their being our friends. He said that masters requiring ballast and water should act with great caution, and, in every instance, display the red flag, and keep it flying, until a similar one should be unfurled, by the aborigines on the shore. He named two places where ships might procure good water. He said that the name for water, in the aborigines language, is *lalium*; for stones, *chachilai*; *machooliâ* signifies hungry, and *lelicki* cold; *kaka* means brothers, and *mazangiel*, chief. He insisted upon no [p. 33] one's being allowed to visit the villages of the tribes or their hunting-grounds. "We are curious and glad to see you," he observed, "but I am sure a free access to our settlement would only lead to fresh quarrels, when the old state of affairs would have again to prevail."

The Chief's brother, who speaks Chinese very fluently, then said that, as we had a way of fixing our words on paper, I should oblige him if I would write down what we had just agreed upon, so that it might be of use, in case of misunderstanding between the tribes and cast-aways. Although much surprised at the idea, I at once complied with his request. Valueless and informal as an official document, as it is, I cannot but think that since the means of rendering anchorage in the south of Formosa is comparatively safe is so easy, it would be well to make these means so public that ships of all nations may know, through their respective authorities, how to act when driven on that coast. The paper reads as follows:

Territory Under Tauketok

Village of the Sabarees, February 28, 1869.

At the request of Tauketok, the ruler of the eighteen tribes south of Liangkiau, and between the range of hills east of it and the Eastern Sea, including the bay known as the Southern Bay of Formosa, where the crew of the American bark Rover were murdered by the Koaluts, I, Charles W. Le Gender, United States consul for Amoy and Formosa, give this as a memorandum of the understanding arrived at between myself

and the said Tauketok in 1867, the same having been approved by the United States Government and assented to, I believe, by the foreign ministers at Peking, viz:

Cast-aways will be kindly treated by any of the eighteen tribes under Tauketok. If possible, they are to display a red flag before landing.

*Ballast and Water.*—Vessels requiring supplies are to send a crew on shore, displaying a red flag, and must not land until a similar token has been shown from the shore, and then only at the spot indicated. They are not to visit the hills and villages, but, when possible, are to confine their visit to the Tuiahsockang, being the first stream on the east coast, north of the southeastern cape of South Bay, and to the Toapangnack, to the west of the rock where the Rover's crew were murdered, the latter being the better watering-place in the northeast monsoon. Persons landing under other than these conditions do so at their own peril, and must not look, I believe, for protection from their government if molested by the natives, who, in such case, will not be held responsible for their safety.

Chas. W. Le Gender, United States Consul.

Witness: I. Alex. Man, Commissioner of Customs for Southern Formosa.

Witness and interpreter: W. A. Pickering.

Having handed the paper to Tauketok and retained the rough copy for myself, I gave the chief one hundred and eighty yards of red camlet, a small pistol, a single-barrel shot gun, (unserviceable,) and a spear, presented by Messrs. Tait & Co. and Messrs. Elles & Co., both of Amoy; an ivory spy-glass and case, by Mr. I. Alex. Man; some beads, and a quantity of rings, bracelets, and a case of gin, by myself. The only serviceable gun I had, a fine Enfield, I gave to my faithful guide, a resident of Sialio, and a member of the militia forces enrolled by Chentai Lew, in 1867, for the defence of the district against the aborigines. Tauketok had not expected this attention, and he was evidently much touched by it. "If you have brought all this to buy me," said he, "you have taken a useless care, for you had my word; but if you hand me these presents as a token of friendship, I receive them with pleasure. Of course, words we can speak, but who of us can see in each other's heart?" Whereupon he left the room.

Soon after, quietly and without ostentation, a religious ceremony, conducted by a woman of great age, commenced. She solemnly walked up and down the square, having in her hand a cupful of water. While she recited in a quick voice some invocations, she would spill water [p. 34] on the earth. After a while she walked away, and a repast was served on the spot where she had officiated, to all present except the chief who dined in a room close by. The repast lasted nearly one hour, and consisted of boiled rice, pork, and water. Although I had brought them abundance of spirits, of which they are very fond, they drank very little thereof, and they were, after the ceremony, as sober and quiet as I had found them in the morning.

It was 3 o'clock in the afternoon. I wanted to prolong my stay among these people, hoping by it to learn a great deal of what I was so anxious to know -- their religion, customs, and political organization; but I felt that the tribes must be alarmed by our presence among them, if we should unnecessarily prolong it. They might possibly infer from our protracted delays in leaving that we wanted to study the topography of the country and the means of access to it. If such suspicions were once entertained of us, they would not be so easily dissipated; in fact, much harm might result from it. Therefore, without delay, I informed Tauketok that our home was a long way off, and that I must return as soon as possible; and, in their fashion, without more words, I gave the signal of departure. Our tent was instantly struck, our baggage put in order, and, in less than fifteen minutes, we were away, firing guns on each side, as a sign of amity. Besides the firing of matchlocks, these aborigines have no other way to bid each other adieu. The same custom obtains from one end of the island to the other.

On our way back we halted at the volcano where, sixteen months previous, I had met Tauketok. I examined the spot with much care. It is situated on the declivity of a small eminence composed of slate. The slate is much corrugated, owing to compression by the Plutonic breccia and corralloid rocks on each side of it, which, at one time, must have made eruptions through its extended mass. In another report, I shall take occasion to dwell longer on this interesting subject. The "Volcano," or, more correctly speaking, the "fire hill," is not a volcano, as its name in Chinese would lead one to suppose, but a series of crevices on the bank of a torrent, through which jets of light carbureted hydrogen gas escapes. Such gas jets have been found at many points of the globe. On the northern slope of the Appennines there are many. At Maccaluba, in Sicily, they cover a large extent of land. They have been seen in the Crimea by Pallas. They are reported to occur in a marlaceous clay, much resembling, from all accounts, that of the "Volcano" at Baker, on the banks of the Caspian Sea. But at the latter place, besides the carbureted hydrogen gas, bitumen and naphtha vapors escape. We have these jets in America. Dr. Manson, of Takao, has found them in a shaly slate, at He-Soa, (fire hill,) some forty miles east of Taiwanfoo. I have myself studied the same phenomenon, further north, at Koukau, east of Ouland, in the Tamsui Ting. At Koukau, the crevices occur also in the shale, in the vicinity of many rich rock-oil springs. Sometimes the rock-oil, the gas, and the abundance of water escape together or alternately. These springs often stop. When, after a few months or years of cessation, the phenomenon again returns, a quantity of water first issues from the cracks, then the gas, and the oil, when there is any, comes last. But when the water and gas escape simultaneously, the latter is exceedingly cool, and entirely free from any of the smell that is peculiar to the gas. At Koukau, the gas spurts out with a certain force and much noise, ignites of itself, in the summer, and keeps turning for years. At the "Volcano" the phenomenon is somewhat different. The gas does not issue, unless the earth is removed at a depth of a few inches, and some dry grass is burned over it. Then it inflames and burns away, [p. 35] until it is blown off the strong sea winds peculiar to the locality. The "Volcano" is situated almost at the extremity of the long chain of mountains that runs throughout the island, from Koukau to Mount Sylvia, east, and then south to the South Bay of Formosa.

I have examined the rocks of the chain at Koukau and between Takao and the extreme south of the island. Dr. Manson, of Takao, has observed them at Lacoulie, and Mr. Pickering, both in the neighborhood of and at Mount Morrison. Everywhere they show an alternation of carboniferous sandstone, slate, lime, shale, and clay. It is most likely that, from time to time, the gas jets break forth at points of the hills where they had not been observed before, rushing through its long grass and forests of huge trees, and the rock-oil, which, as a general thing, flows in their vicinity. As they are apt to spontaneously ignite in contact with the atmosphere, they must set fire to these materials, and cause a local conflagration that gives to the many peaks of the chain, the appearance of volcanoes. The burning mountains, of which the Chinese speak in their books on Formosa, will prove, I believe, to have been nothing but the conflagrations of this sort. It is not likely that they "fire hills" (as they are called) of Formosa are geysers, such as we see in the Tamsui Ting, west of Kelung, at Kimpaoli, Tah-Yu-Kang, and near Banca, although similar geysers may be found in that chain. These geysers are quite different from the gas jets. They occur in volcanic mountains, some of them 3,000 feet high, composed of blue clay, with crystals of pyrite, intermixed with earthy matters containing magnesia, lime, potash, sulphur; also of yellow and red ochre, and huge blocks of lavatic trachytes, and a few volcanic breccias. The mountains in which the geysers occur are plutonic in the full sense of the word. They were thrown up at an epoch posterior to the carboniferous formation, which, near Kelung, for instance, they have penetrated, dislocated, and often destroyed for many square miles. They emit sulphureted hydrogen gas, which decomposes under atmospheric influence, leaving a deposit of crystallized metallic sulphur. All these facts, insignificant in appearance, are important to note, being calculated to throw much light upon the geology and mineral resources of Formosa.

The Kelung carboniferous sandstone has been traced as far south as Tossupong, at the southern extremity of the Liangkian district. Bituminous coal, petroleum, and gas-jets have been discovered at Koukau, in the Kelung sandstone, and Dr. Manson reports its presence in the slate at Lacoulie, about 400 feet above the level of the sea. I understand from Mr. Pickering that the same mineral products are found between Koukau and Lakoulie, at several points of the western declivity of the central range, and we now see that they occur as far south as the Sabarees. It then seems to follow that the geological formation of Formosa presents the same features and varieties from north to south; and therefore, most of the great staples, coal, sulphur, petroleum, that are procured in abundance in the Tamsui Ting and east of it, can be expected to be found further south, and most likely in the whole systems of mountains extending from east to west to the eastern sea. If to these products we add indigo, and tea, now forming an important article of export in the Tamsui Ting or in the western part of the aborigines territory; the camphor tree that grows on native soil as far as Lakoulie; the fifty, or sixty varieties of rich timber of the Kamolang Ting, and I should think of the whole native possessions as far as Lakoulie, we may say that the island of Formosa is indeed one of the richest spots on the face of the earth. A little before sundown, we reached the Peppo settlement of Kootang, and spent the night with their chief, Assam. The [p. 36] Peppos

(or natives of the plains, by opposition to Kalis, natives of the mountains) are the descendants of a laborious and hospitable race that were yet flourishing under the humane suzerainty of the Dutch, during the latter part of the seventeenth century. Speaking of them, a Dutch historian that lived in 1675 says:

These people, as a general thing, are very friendly and good-natured. They showed us [the Dutch] great hospitality. They would not wrong any one or steal. They are faithful to their friends or to their allies. Unlike other Indians, they are loyal, and they have been known to suffer and die, while through treachery they would have saved themselves. They are agriculturalists, and raise much rice; but whatever the extent of their farms may be, they never plant more than they actually need for their consumption. The men are indolent, and they leave to women the care of the field. When the rice is ripe the latter reap the harvest; but they never cut or beat out more of it at one time than what is actually required for the day. Whatever they have reaped they take to their home, and expose it all night to the heat of their fireside. By two o'clock in the morning it is dry; they then beat it out, clean it, and make it ready for use; and they go on in this way from day to day and from year to year. Besides rice, they eat two or three other kinds of grain, which, with them, takes the place of bread, and, when necessary, is substituted for rice, fruit, or any other aliment. Besides, they plant ginger, sugar-cane, watermelons. Wine or European fermented liquors are unknown among them; * * * * but they have a sort of beverage, which in strength and taste is not second to any Spanish or German wines. It is prepared by women. * * * * When free from farm-work, the women spend much time in fishing for crabs and oysters, which they consider the best food after rice. Their town or village habitations are large and spacious, and are made of bamboos.

With the exception of the fishing, of which they now are deprived, since the Chinese have driven them away from the coast, the Peppos now live almost as they lived two hundred years ago. Their dialect, as a matter of course, must have suffered some changes from their frequent intercourse with the Chinese, whose language most of them speak very fluently. Their dress also differs from what it was in the old times; and it is not unusual to find in their habitations images of the Queen of Heaven, of the Fuhkien Chinese, or some Hakka idols. I could not hear anything of their government and civil ceremonies. As of old, they are quick to resent an insult and take revenge; and nothing is more precious to them than the skull of their enemy, a fancy, common to them and the natives of the hills. The Dutch represent that they knew the art of carving and tracing pictures, with which they decorate their houses; but I have not found any relic of it among them either in the north, south, or middle of the island. The bamboo pipes, which they carve and ornament with brass and iron procured from the Chinese, are of a rude model. The only industry, at which they are expert, is weaving, and is in the hands of the women. Their linen is fine and strong, and is made of a sort of hemp or of some other textile plant growing on the hills. Unlike most of the hill-tribes, they know the value of money; but they are not avaricious, a proof of which I had again, in this case. Having presented their chief, Assam, with some red cloth of English

manufacture, of which they are very fond, and a little jewelry, he compelled to accept in return some dried venison and a piece of fresh pork. It took us but a few hours to reach Sialiao, where we arrived at 10 o'clock of the following day, hungry, tired, and anxious to return to Takao. Before embarking, we visited Chasiang. This town, which goes by the name of Liangkiau on the maps, is situated on the northern side of the bay of that name. It is said to contain two thousand inhabitants, (Chinese of Fuhkien,) and it derives its importance from its trade in firewood, charcoal, deer-horns, deer, otter, leopard, and wild-cat skins, and buffalo hides. A small block-house to the west helps the inhabitants in watching the movements of the pirates, and of the natives who live in the mountains close by, and with whom, from the day they landed on that shore, they have been at war.

[P. 37] While I was in Chasiang, in 1867, Chentai Lew, who commanded the Chinese forces, sent a messenger to Tauketok to request an amicable settlement of the old difficulties. The chief refused to come. He sent, it is true, two of his daughters; but it was with a haughty message: "Tell the Chinese chief," he said to them, "that his people have so often broken faith with us that we cannot trust them further, and the quarrel must last as long as there shall be two men on each side to conduct it." These courageous girls, who had come under the safeguard of Mr. Pickering, refused to kneel down before the Chentai, and having delivered their address they promptly retired, as if they had just met the most humble of their slaves. At 2 p.m. the next day, the wind being favorable, we weighed anchor. Passing Hong Kang, we noted the spot where the wife of Coxinga, the Chinese general and pirate, who conquered Formosa from the Dutch in 1662, is said to be buried. The valley of Hong Kang is noted for its rice, the best, it is said, in Formosa. Unfortunately, the quantity furnished simply suffices for the local consumption. Near the village on the Hill are to be found the great Takubien tribes, numbering, it is reported, one thousand warriors. The inhabitants of Chasiang are engaged in the commerce of firewood, which they exchange with the natives of the Hills (*Kalis*) for powder, shot, articles of clothing, and matchlocks. We spent a day at Pangliau trying in vain to gain access to the hills, the Chinese throwing all sorts of obstacles in the way; therefore, we promptly left for the north. Pangliau is a little town of about two thousand inhabitants, well situated at the head of the bay, which at times offers good anchorage, being protected from the eastern winds by the high range of Hills that encircle it to the water's edge. The population, the lowest and most ill-disposed I have seen on the coast, is mostly given to fishing or to trade. They obtain from the natives an excellent kind of tobacco, which they use on the spot. The fine cloth, also of native manufacture, is likewise consumed in the place; but rice, deer horns, hides, skins of all sorts, firewood, and a small quantity of hemp are exported to Taiwanfoo.

We were compelled by the violence of the wind to land a few miles from Tung-Kang, where a large quantity of the opium and foreign goods consumed in Southern Formosa is smuggled, and the next morning, at 7 o'clock, on the 5th of March, we safely arrived at Takao.

Before closing this I regret to have to report to your Excellency that while the aborigines of Taiwan have kept their faith, the Chinese, from whom we should have expected quite as much, if not more, have yet to perfect their part of the agreement. When the case of the Rover was compromised subject to the approval of the minister and the home office, it was understood between the Chinese officials and myself that they would recommend to Pekin the organization of the district of Liang-Kiau under civil and military rule, and that, if allowed by their imperial superiors, they would build a fort at Tossu Pong, thereby meeting the views of the lamented Rear-Admiral Bell and of your predecessor (Hon. Anson Burlingame) in office. In May last, Mr. Williams instructed me to urge upon the provincial authorities the necessity of complying with the orders (given in accordance with these views) of their superiors in Pekin. I did so, and I received the assurance first, of the Viceroy, and after, of the Imperial Commissioner, that they would satisfy me; but I soon discovered that I had been deceived. While in Taiwanfoo, because I was not on the spot, as usual, to see the thing done, Tseng Tayen did not ever mention the case to the authorities of Taiwan. Now, I find that the temporary [p. 38] fort built at Tossu Pong by Chentai Lew, in 1867, has been abandoned. The two guns in it and the few soldiers, left in charge, have been removed to Chasiang; and all this, so they say, because a third survey of the district has to be made, and a new reference to Pekin is required. Now that the case is again in Pekin, I leave it to your Excellency's care, and shall await future instructions.

I should fail in my duty if, in connection with this, I omitted to mention that Mr. Man, the able Commissioner of Customs for Southern Formosa, and Mr. Pickering are much opposed to the erection of the fort, and to the introduction of the Chinese rule in the district of Liang-kiau. They advise our trusting entirely to the natives, who now seem to be well disposed. I differ from them. In the first place, Tauketok cannot object to a fort's being erected at Tossu Pong, for he himself named the spot, when I said to him that one would have to be built. (See my dispatch of the 12th of November, 1867, No. 18, to the United States minister, page No. 18.) He claims, it is true, the privilege of collecting tribute from the half-castes of the Liangkiau valley for the use of the lands obtained from him in former years, and he declares that he will insist upon the tenants' fulfilling their agreement. I do not see how this could interfere with the organization of the district; but if it does, the Chinese must pay the tribute or abstain from collecting land-taxes themselves, or, if they so desire, and Tauketok agrees to it, acquire the land. A fort is required at Tossu Pong from the fact, evident to all, that the Chinese, or the foreign powers, must let the aborigines know that they are watched, and that we have at hand a force sufficient to punish them is they break faith.

In fine, I beg to express the hope that your Excellency will approve of my action in this matter. The south of the island is one of the most important highways in this

part of the world, and, at the same time, it may be said to be the worst spot for the storms and convulsions of nature that any sailor may have to visit in the China seas.

The shore of the South Bay of Formosa, or the rocks near to it, are the only places where mariners are exposed to shipwreck, as they are turning to the east to catch the currents of the Gulf Stream, and it is the only shore where they can land when they escape from the waves. It should be made safe at all hazards. (See Diplomatic Correspondence, 1868, part 1st, page 498; No. 202, page 501; No. 206, No. 213, page 507.)

**II.**

**General remarks on the products of Northern and Central Formosa.**

There are few spots on the earth that offer to trade more valuable articles of export than Northern and Central Formosa, from Tamsui to Takao. A few miles below the latter port, the island narrows suddenly, and, therefore, is much more exposed to the devastating storms which assail it on both sides; the sandy tracks occupy more space; the mouths of the streams form narrower and shorter valleys, and save a little sugar, some skins and hides, and a meagre supply of small firewood, it produces nothing in quantity, of what constitutes the wealth of the northern part of the island.

**Coal.**

The vast coal-basins of Northern and Central Formosa have hardly been opened or even explored. The only mines, that are now worked, [p. 39] are close to the water's edge, near Kelung Harbor, at a point favorably situated to compete with almost any other harbor on the mainland, as a coaling station.

In December last, an engineer, Mr. Dupont, sent expressly for the purpose from Europe to China by the foreign directors of the Chinese arsenal at Foochow, made a confidential report on the Kelung mines, a copy of which has been procured. He visited the country between Kelung, Chemo, Banca, Tamsui, and the sea, measuring about 148,268 acres. The powerful and luxuriant vegetation of Formosa, combined with the almost total absence of roads, rendered the investigation very difficult, and, at times, presented almost insurmountable obstacles, so Mr. Dupont had to circumscribe his research to the points already uncovered by the mines. All he could see were two veins, one of which, the upper one, is 37.40 inches thick, and yields an excellent quality of bituminous coal, hard, compact, and quite unlike that of the other vein, which is full of dirt, sulphur, and stony matter, and not fit for use, unless it should be converted into patent fuel. This, Mr. Dupont estimated, could be done at the cost of $3.37 per ton, the product being equal to the best imported coal. Doubtless, to the yield of the latter vein is due the ill-repute into which the Formosa coal has fallen with many. So far, no coal has been found which could be converted into coke, such as is used in the manufacture of iron, or the smelting of brass and other metals; but better beds probably exist in the

neighborhood of Sauo Bay, where the formation is more defined, and where the specimens found present a more favorable character. At the present time, the mines are most primitive in their aspect. Where coal crops out, horizontal levels have been excavated in the direction of the bed, and masses of coal have been dug out, leaving, at intervals of six feet, pillars of coal six feet square, to support the ground, and in this manner the work is kept going on, till the want of air, the abundance of water, or other causes compel the miner to stop, and go to another point.

Owing to the peculiarity of the ground, there is very little to change in this system of mining; for, if by it, one-fifth of the coal is lost, in return no timbering is required. Much can be said, however, against the stock of tools employed. At the present time, the Chinese miners take down about three cubic feet of coal, per day of eight hour's work, that is to say, only a third of what western men could do. Should they be well supplied with tools, they would accomplish quite as much, with considerably less labor. At Kelung, a sort of pick-ax is used to excavate the ground and dig the coal. It serves as a pick for digging and a hammer for breaking. The point is about 7.80 by 1.56 inches, and the hammer is of the same width and 2.34 inches long. The handle is about 15.60 inches in length. In America, and on the continent of Europe, miners employ from four to seven different tools, according to the nature of the bed. These do not include drills, hammer, and other implements for blasting.

At Kelung, the coal is brought out of the levels in a basket made of bamboo, and containing less than 22 gallons. It is placed on a plank slightly curved at both ends, and to which a piece of rattan has been attached, as a substitute for a rope or chair, to drag the whole weight on the bare ground. This mode of carriage is both slow and expensive, and it might, with advantage, be abandoned for a light wagon, rolling on rails made of wood; for, owing to the acidity of the water, which is abundant, iron would rapidly corrode and wear out. The lamp used in the levels consists of a small cup full of oil, in which is dipped a wick made of the material used in the manufacture of rice-paper, (*Aralia papyrifera*,) cut in small, round pieces, one-sixteenth inch in diameter [p. 40] and four inches long. Paper rolled up and previously dipped in oil is substituted for candles whenever a portable light is needed. The coal is picked and lifted by hand, and afterward classified according to size; and, to avoid obstruction, the dust is burnt up, whenever it is not taken away by the lime manufacturers of Kelung.

The cost of mining, as calculated from the returns of four mines, may be fixed as follows:

| Mines | Class of quantity | Cost of digging coal | Carriage in the levels | Drainage | Wear of tools, light, &c. | Total |
|---|---|---|---|---|---|---|
| A | 52 piculs | $1.00 | $0.68 | $0.17 | $0.18 | $2.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| B | 52 piculs | $5.00 | $1.70 | $0.34 | $0.75 | $7.80 |
| C | 52 piculs | $0.75 | $0.81 | | $0.12 | $1.78 |
| D | 52 piculs | $3.50 | $2.67 | | $0.43 | $6.60 |

The cost of a given quantity of coal, delivered at a point from which it can be transported by water to Kelung, is subjoined. It must be noted, for the understanding of this table, that the Chinese picul is equal to 133 1/3 pounds:

| Mines | Cost of a given quantity at the pit | Carriage from the pits to the water station | Total cost |
|---|---|---|---|
| A | Cost at the pit of 52 piculs, $2.00 | | |
| | Cost at the pit of 100 piculs, $3.84 | Carriage to coal harbor per 100 piculs, $10 | $13.84 |
| | Cost at the pit of 1 ton, 64 cents | Carriage to coal harbor per 1 ton, $2.30 | $2.94 |
| B | Cost at the pit per 260 piculs, $7.80 | | |
| | Cost at the pit per 100 piculs, $3.00 | Trainage to coal harbor per 100 piculs, $7.40 | $10.40 |
| | Cost at the pit per 1 ton, 50 cents | Trainage to coal harbor per 1 ton, $1.23 | $1.73 |
| C | Cost at the pit per 39 piculs, $1.78 | | |
| | Cost at the pit per 100 piculs, $4.56 | Carriage to Tamsui river per 100 piculs, $1 | $5.56 |
| | Cost at the pit per 1 ton, 76 cents | Carriage to Tamsui river per 1 ton, 16 cents | $0.92 |
| D | Cost at the pit per 168 piculs, $6.60 | | |
| | Cost at the pit per 100 piculs, $3.92 | Carriage to canal per 100 piculs, $1 | $4.92 |
| | Cost at the pit per 1 ton, 65 cents | Carriage to canal per 1 ton, 16 cents | $0.81 |

From the foregoing it is easy to see that the carriage, both in the levels and from pits to the water station, constitute the main expense of coal production in Northern Formosa. Mr. Dupont estimates that if a western system of transportation were substituted for the present sledding of the Chinese, and an improved stock of tools were adopted, the first cost of coal would be reduced to $2 or $3 per 100 piculs, or 34 cents or 50 cents per ton, at the pit. It is estimated that the production of the mines about Kelung in 1868 did not exceed 36,218.12 tons, about one-fourth of which has been wasted or consumed on the spot. At this rate, Mr. Dupont calculates that it will take centuries to exhaust the mine.

In my opinion the presence of volcanoes in the neighborhood of Kelung will be an insurmountable obstacle to the working of the mines below the level of the sea. In their present state, these coal measures are anything but free from dislocations, which must multiply with every earthquake of the present age. Through these fissures the water from the high ranges to the south of Kelung finds a natural passage, and saturates the hills in which the coal lies, to such an extent as to render the expense of drainage excessive, and the first establishment of underground works, easily put out of order by any oscillation of the soil, a most risky affair. Yet this should not discourage the investment of capital in the mines situated above the level of the Kelung Rapids, for there the field is large enough to satisfy the most sanguine expectations.

It is believed that the impediments arising from the opposition to [p. 41] mining by an improved process made by the laboring or mercantile classes among the Chinese, have been much exaggerated; for in China, as elsewhere, self-interest is a great help to amicable understanding, even when the superstitions of the people are in the way. With the authorities, the literary men and the gentry, it is different. They oppose mining on principle, saying that it would bring agriculture into discredit, and awake in the population that thirst for wealth which is so apt to carry them away from their legitimate occupations and to bring on that state of disappointment and misery in which men become lawless, reckless, and inclined to revolt against all tradition and authority. These adverse influences being incessantly exerted over the slow process of persuasion, or a decided intervention on the part of foreign powers in favor of reform, can succeed.

**Rock oil.**

This product was first discovered by Mr. John Dodd, the Consular Agent in Tamsui, some twenty miles southeast of Oulan, on the territory of the aborigines, and in the range of mountains where, in 1868, the presence of coal was noticed in the "Kelung sandstone." The oil flows from crevices at the foot of a hill, and is collected by the Hakkas in large wooden tubs, 6 feet in diameter, and dug in the stock of camphor trees, where it is left to settle. It is used by the inhabitants of the country as a lighting material

and as a remedy for bruises and wounds. A sample of this oil has been forwarded to the Museum of Natural History at New York. At present the staple does not constitute an article of export, the Chinese authorities having opposed any attempt to bore the ground from which it flows, or to ship it away.

**Sulphur.**

Although the production and exportation of sulphur is prohibited by treaty, it takes such an important place among the products of the island that it is entitled to notice in this report.

Leaving by sea and sailing in a western direction toward Tamsui, a small promontory, marked Double Rock on the maps, is reached after two hours' run. The sandstone found at Kelung shows again along the coast, but little by little it loses the monoclinal features peculiar to the Kelung group, till, at Double Rock, it lies in all sorts of manner, at most irregular angles, giving signs of violent disturbances, doubtless contemporary with the eruptions through its mass of the volcanic hills emerging from the narrow plain close by. On ascending the chain, lying opposite Double Rock, is found the volcano of Kim-pao-li, 1,450 feet high; a little to the west, that of Tah-Yu-Kang, 2,275 feet high; and to the south of this latter, what they generally call in Formosa "the Tamsui mine," 450 feet above the level of the sea. All these volcanoes produce sulphur. They resemble in every respect the geysers of the Pluto River, near Mount Helena, north of San Francisco. The only difference between the two is, that the Californian geysers have made eruption through the granite, while those of Formosa penetrated a stratified formation, the Kelung carboniferous sandstone, which is capped here and there, and probably underlaid by highly fossiliferous limestone. The mass of these volcanic mountains is composed of huge blocks of lavatic trachyte, cemented together, partly with a dark blue clay, rich in minute crystals of iron pyrites of a beautiful yellow color, uniformly distributed into it, and so bright that they appear, at first sight, like so many pieces of gold, and partly with an earthly matter, white and red, the constituent [p. 42] elements of which are held in solution by the hot and cold springs spurting in the craters, or at the sides of the various peaks of the chain. At Tak-Yu-Kang a vegetation of luxuriant growth shows upon the sides of the hills, and consists of shrubs, bamboos, and various other trees. I clambered to the spot where the geysers first appear, and witnessed the phenomena. In front of me, a small stream was passing, tumbling down, concealed from view by the side of the hill, which prevented me from seeing the main geysers. I thrust a stick into the place by my side, where the sulphur rises, and brought out a small quantity of it, which I kept. I found the water of the springs to be very hot and highly acidulated. If, at some future time, the island falls into other hands than the Chinese, this sulphurous acid, for it is nothing else, will be of an immense value to sugar refiners in Northern and Western Formosa, where the quantity of sugar-cane grown is already very large and increasing yearly. I walked with some difficulty to the point where the main stream runs, the water of which possessed the same acidulated taste. A few yards further brought me into the midst of

the main puffing geysers. Here the fumes of sulphur met my nostrils at every step, while the rushing stream, as it spouted from the many cavities, condensed on my spectacles, blinding me for the time. The latter did not issue in one continuous column, but at short intervals, and with a great noise, as from the pipe of a steam engine. It was with some difficulty that I could breathe among the fumes of sulphur, which had destroyed all vegetation some fifty yards around the crater. At certain points of the crater, cavities filled up with muddy water and from which gas and steam were escaping together, looked like so many large basins full of a liquid of some sort boiling. I held my hand 15 inches above one of the spots and it was scalded by the steam. The noise around me was intense. There was no cessation of it, as though a vast workshop beneath was in full operation. Unfortunately, I was disturbed in my observation by a storm, which, enveloping the hill summit down to, perhaps, 200 or 300 feet of its height below, placed me in the midst of lightning and torrents of rain; so, with something like the lower regions under me and the angry elements above, I almost fancied that I was in another world, and, certainly not thinking myself safe, hastened to return.

Tah-Yu-Kang is a reproduction of Kim-pao-li, on a more imposing scale, and the Tamsui mines present the same phenomena, but on a reduced plan.

Although the manufacture of sulphur is prohibited in Formosa, a small village has been built by the Chinese miners at Tah-Yu-Kang. The furnaces are of a very primitive construction, placed under sheds covered with dry grass of the neighboring hills. This grass is used as fuel in the preparation of the sulphur. The furnaces consist of an iron basin lined inside with clay and placed on a narrow fireplace built of bricks. The ore having been washed and cleared as much as possible from all earthy matters, is thrown in the pan, where it slowly melts down. It is continually stirred up till all the earthy material has been taken out. It is then poured into wooden moulds having the shape of a truncated cone, where it is left to cool. When solidified it is taken out through the largest opening of the mould, the bottom of which is knocked out. Each cone of sulphur weighs about 45 pounds. The contractors engage to smuggle the sulphur to the little village of Kimpaoli, and to place it on board of native junks for a certain price, which I could not ascertain, taking upon themselves all risks of seizure. At Tah-Yu-Kang I saw lying on the ground over $50,000 worth of manufactured sulphur. The sulphur found in the volcanic mountains of Formosa is [p. 43] due to the decomposition of the steam from the geysers, containing sulphureted hydrogen gas in fixed chemical proportion, when it comes in contact with the atmosphere. The metal sublimates in the numerous crevices of the soil where it has accumulated for centuries, and where it continues to accumulate. The amount of crystallized sulphur thus produced is not deposited as rapidly as one would suppose. Otherwise, by placing reservoirs above the crevices from which the fumes escape, a very large quantity of a very pure and valuable crystallized substance, known in the trade as flour of sulphur, could be obtained without much expense. Experience, however, has proved that this cannot be done to any advantage. Many years ago a company was formed under the auspices of the French government, and with a large capital, to work the fumeroles of

Guadeloupe, but the result was quite discouraging. Out of thirty-eight geysers which were in activity in the island, but five tons of sulphur were collected in one year.

At the summit of Tah-Yu-Kang, I have found the blue clay, now lying at the level of the sea. Near Chui-ten-Kah, fossils of the species *Tridacna gigas*, such as are now living in the Chinese seas, were dug out by Mr. Dodd from the embankment of the Kelung Rapids. In the clay hills of the districts south of the Tamsui Ting, some thirty miles from the sea-shore, and on Ape's Hill, at Takao, shells of the living species have been collected. In all these discoveries lies the proof of the recent appearance, in the geological age, of the Formosa volcanoes.

**Camphor.**

The Hakkas of Central Formosa devote much time to the manufacture of camphor. The process is very simple. Unlike the Japanese, who boil the wood, the Hakkas cut it into small pieces about one-quarter of an inch thick and three inches long, and place the fragments into an earthen ware receptacle where steam is introduced. The steam saturates the wood, combining with the resinous matters which it contains, and carries these away into a large condenser where the camphor falls in a crystallized state, when placed in contact with cold air. Figure 1 represents a camphor furnace in section --

[Figure 1 here]

[P. 44] C is the condenser; P is the cylindrical earthen ware jar, into which small pieces of camphor wood are placed. In H the union of the jar P with the condenser C is made perfect, and the joint rendered air-tight by means of hemp carefully pressed against the condenser H, by a piece of rattan fastened around it; clay is afterward placed over the rattan and the hemp. F is the floor of cylinder P, and is formed of two small disks, *c′ c′′* uniting in *c′* and *c′′*, and perforated with four small holes intended to give passage to the steam produced in V, in which water has been previously placed. G is the fire-place. The fire is started with pieces of wood 10 inches long.

[Figure 2 here]

Figure 2 affords a view, in perspective, of the furnace in which the camphor is produced. The floor is made of bricks dried by the sun. The sides A, C, P, Q are made of three-inch planks. These are kept from expanding under the influence of heat, which does not require to be very strong, by six braces B, made of wood. The furnace stands under a thatched shade built of bamboos, made fast together by pieces of thin timber. There are no windows to the shade, and but one door, which is suitably located to give draught to the fire-places. Such a furnace is capable of producing four catties, or five pounds and one-third of crystallized camphor per day.

During the process of distillation, an essential oil is produced which mechanically mixes with the crystal of camphor. When submitted to a current of oxygen gas or treated by nitric acid, the oil becomes solid camphor, and it might be profitable to try to operate the conversion on the spot, in the interior or at the port of shipment, where a large quantity of oil must accumulate. At the present time this substance is almost unknown in the trade, and so far, all efforts to dispose of it to advantage, either in Europe or America, have failed.

On being taken out of the condenser, the camphor, which contains a great deal of that oil, and also a large quantity of water of crystallization, is packed up in tubs for shipment, and in that state it is weighed at the custom-house, and duty is charged on the same, less 5 per cent. It has been found that, between the port of shipment and the port of destination, owing to settling and tossing, both the water and the oil [p.45] fall to the bottom of the tubs and run out, causing a great loss in weight, which afterwards, as a matter of course, is charged to the shipper. This loss, added to that arising from evaporation, is said to amount to 8 and 10 per cent. during the north-east monsoon, and often to 10 and 12 during the summer months, or an average for the whole year of 9 or 11 per cent. Therefore, the allowance is free from covering the loss, and, in justice to the trade, it should be increased.

**The Camphor Monopoly.**

The regulations requiring foreign merchants to purchase camphor from the government farmer of this staple, gave rise to a serious controversy between the provincial authorities and the representative of the United States, in 1868. Practically, this controversy came to an end after the Amping affair, which caused the monopoly to be abolished. Yet, as it may occur that, sooner or later, the Chinese will demand a reconsideration of the matter, it is but wise now to examine again into the subject, and, once for all, settle the question of right involved. In connection with this, I will examine, first, the title of the aborigines to the portion of the island occupied by them, and, after, the effect of foreign treaties upon the Chinese claim to the monopoly of any trade in Formosa. I now consider this subject under the first head.

It is claimed that because China has no established authority within the limits of the territory inhabited by the aborigines, that portion of the island does not constitute a part of the empire, and that, therefore, any one can occupy it with a view of making permanent and independent settlements, looking exclusively to the chief of tribes for the justification of the act. This, I believe, is a mistake. I concede that the Chinese do not derive their title to Taiwan, as they claim, from its discovery by them in 1430, for even at this very day they know but little of it; and, moreover, the bold outlines of its mountainous ridge could hardly escape the attention of the whole Japanese fleet[,] which, before the revolution of 1585, had been exploring the Eastern Sea as far as the Bay of Bengal. Indeed, they are known to have had trade from time immemorial with the Formosan aborigines. So far, however, as regards the claim arising out of conquest,

or settlement, or by prescription, the case is different. They derive a strong claim from their conquest of the middle western coast, in 1662, when Coxinga drove away the Dutch from Fort Zelandia and the small province of Saccan, in the neighborhood of Taiwanfoo. This final act of capitulation is in eighteen articles. It mentions simply, it is true, the one fort and the property therein, but is admitted that the European stronghold had previously surrendered or been taken by storm. Since 1683, when the Chinese settlements in the island officially passed from the hands of the successor of Coxinga to the Tartar dynasty of the present day, the Chinese have continually advanced toward the mountains, driving the natives before them. In this manner, they have occupied the plains that extend between the sea to the west, and the high central range of Hills from north to south; also Tatum and Lohan groups, between Mason peninsula, the port of Banca, Howei, Banca and the Nankam River, the coal region in the vicinity of Kelung, the rich valley south-west of the same, through which the Kelung rapids run, and the mountainous suburbs east of it, extending as far as Sauo Bay, known as the Kamolan Ting. This brought them to the foot of the high ranges in the interior. There they were compelled to halt, finding in the fierce mountaineers and adversary whom, to the present day, they have been unable [p.46] to dislodge, and now they have drawn a line on their maps, at this point, writing these few words in testimony of their despair of ever carrying out their original plan of conquest, "China ends here."

It is said that a large number of Hakkas, a long persecuted and industrious race of the Kwang Tung province, in former times, being driven away from the mainland by the natives, emigrated to Formosa. They mostly settled between the remaining hospitable tribes of the plains and the Chinese of the coast, founding here and there, from north to south, many flourishing villages. They soon placed themselves in close communication with the aborigines, to whom they made themselves indispensable by procuring for them arms, powder, shot, clothes, of foreign and Chinese manufacture, brass and silver ornaments, salt, &c., &c., receiving, in exchange, deer-horns, bear, leopard, and other skins, dried venison, ginger, pine-apples, hemp clothes, and camphor, of which they commenced the manufacture on a large scale. These ties, founded upon reciprocal advantages, already very strong, were made still more permanent by the new comer's marrying the daughters of aborigines, and receiving large concessions of land on the Hills. These estates soon became the source of immense wealth, affording them ample means of engaging, almost exclusively of others, in the camphor manufacture. I visited several of these settlements, in April and May, last year, and on one of them, situated at the foot of the shoots of the high range of hills, east of Oulan, I counted many farms where tobacco, potatoes, sugar, &c., &c., were raised in abundance, and where numbers of camphor-distilling furnaces were in operation. These Hakkas are lords of their domains, and, although they shave, wear a queue, and live in the Chinese fashion, most of them, practically, ignore the Chinese rule. They pay tribute to the aborigines from whom they derive their rights to their lands; but they export the produce of their estates to the neighboring Hakka town, and from there it is conveyed to the nearest market and sold to the best advantage.

Camphor alone having remained, till the abolition of the monopoly in 1867, and exception to the general rule, had to be sold to the monopolist. At other points east of Changhwa, for instance, where the Chinese have not reached the foot of the highest Hills, violence still takes the place of diplomacy. Expeditions are organized against the natives for the conquest of the lower camphor districts. The adventurers connected with the scheme are insured against the risks of war. A real scale of compensation is provided by the monopolists in favor of those who will suffer in the encounter with the natives and for their families. But the advance of these people, so far, has been very slow, and the bulk of the production of the Formosa camphor is yet due to the pacific and more honorable efforts of the independent Hakkas.

The Formosan tribes, with settlements of friendly Hakkas and remains of Peppos (aborigines of the plains) in their front, claim for themselves an unlimited independence and absolute sovereignty over the portion of the island which they now occupy, and in their pretension they are backed by many.

On the other side, the Chinese, believing that they have satisfactorily established their claim, under the laws of nations, arising out of the contiguity of a semi-civilized power to a country occupied by a wild race, assert a right to seize the territory of the aborigines and hold it, not only against the natives themselves, but against any one else, exactly as the United States claim suzerainty over the Indians in America, and the British over the natives in Australia and New Zealand.

[P. 47] We must concede that if the condition of the absorption of wild races by civilized nations is that the latter will confer the benefit of civilization upon the former, should China fulfill its part of this tacit agreement, its pretension in Formosa cannot be opposed. Upon this principle the aboriginal tribes cease to form distinct foreign organizations, capable of contracting engagements with individuals or making treaties with other nations, independently of their suzerain, to whose fortune and condition they must remain associated. Yet, the state of tutelage in which this condition leaves them, in itself, has nothing oppressive, ("*contra naturam*,") (Florentinus.) and the law which has forced it upon them has carefully defined where it commences and where it ends. Short of a limited political dependence, it leaves them in full enjoyment of their natural rights. ("*Jure naturali, omnes hominess liberi nascuntur*.") (Ulpianus.) A sort of distinct and independent communities, they govern themselves as they choose. The soil on which they live, the grounds upon which they hunt, remain their own. They can retain, they can enjoy both, in their own way and for their own purpose, and as fully as the Chinese of the plains do their rice-fields or their fishing shores. They can lease, they can sell the same to the government of China or to private individuals, whenever they feel inclined, transferring upon the buyer all the rights that they themselves have. These rights cannot be limited or affected in any way by the superstitions, the belief or customs of the Chinese inhabitants of the plains, or of other people. If they desire to cut down the trees or clear the soil for agricultural purposes, they can do so. If they choose to blast rocks, or dig the ground in search of mineral wealth, although, in certain

instances and under certain circumstances, with the Chinese these acts are deemed offences punishable by law, they can do so, and allow other people to do the same. They can mine and allow other people to mine; they can build and permit other people to erect buildings of any size or model, although the same would not be permitted among the Chinese, and all this liberty they can enjoy; all these things they can do, simply because it is conformable to their own laws and to the customs of the majority of civilized nations, and does not conflict with their special obligations toward China.

All that China can claim, in case of transfer of lands, is that it should be effected before its duly appointed officers and bear their seals; it being considered that the sale by the aborigines transfers simply the rights which they themselves have; and the seal of the legal representative of China shows that the title of the Imperial crown has been relinquished to the purchaser.

It would have been an advantage to the world had the condition of the Formosan tribes been so defined and affirmed in the treaties between China and the foreign powers. The country occupied by them might long ago, and in a measure, have been open to us, as it is to the Hakkas, under conditions the most favorable to the protection of individual industry and with best results in every way to the natives themselves. That the latter are susceptible of civilization, not only my own experience, but that of others who long before me came to these shores and had extensive dealings with them, leaves no doubt.

An author of the last century gives the following account of the Peppos:

Of the twelve towns which were subject to the Chinese in the southern part there remain but nine; three have revolted and pay no more tribute to China, but have united with the eastern part of the isle. Under the reigning Emperor, many of the towns have submitted, and it is hoped that by degrees others will follow their example. [p.48] Though these people pass, in the account of Chinese, for barbarians, they seem to approach nearer to true wisdom than many philosophers. By the confession of the Chinese themselves, there is among them no cheating, thieving, quarreling, or lawsuits, except against their interpreters. They are just and affectionate one to another. If anything is given to one of them, he dares not touch it till they who have shared with him in the labor and evil partake also of the reward. It appears there were Christians among these islanders when the Dutch were masters of the island. There are many who understand the Dutch language, who can read their books, and who in writing use their letters; and many fragments of pious books are found among them. These people adore no idols, but abominate everything that has relation to them; and yet they perform no acts of religion, (like the Catholics,) nor recite any prayer. ("The General History of China," &c., &c., by P. du, Halde, vol. I, pages 70-180, London edition, 1736.)

The Dutch are not less explicit. In 1675 one of their historians, adverting to the aborigines, wrote:

The people, as a general thing, are very friendly and good-natured; they showed us great hospitality; they would not wrong any one or steal; they are faithful to their friends or allies. ("Formosa Neglected," &c., &c., 2d part, Amsterdam, 1675, written in Dutch.)

Under Dutch occupation they knew how to write their own language in foreign characters. The fact is attested by the Dutch and authenticated by the title-deeds and other documents now found in the possession of the remaining Peppo tribes of Baksa, twenty-eight miles east of Takao.

One of these papers was handed to me by Dr. Maxwell, of Taiwanfoo, in February last. Those who have spoken of the Formosan as constituting an abject race derived their information from the tribes inhabiting the vicinity of San-o-Bay, on the north-east coast, or the hills east of Pangki, a town situated south of Takao. The latter tribes are the descendants of Tagals, who came with the Dutch or the Spaniards during the sixteenth and seventeenth centuries, drove away the Formosans whose territory they occupied, and exterminated them or reduced them to slavery. They are dark, fierce, and cruel, like their kindred of Manila, and nothing that has been said of them can apply to the majority of the aborigines of the interior to whom the Dutch exclusively refer in their accounts.

If China had no treaties with foreign powers, in the present state of her relations with the Formosan tribes it could not be considered that the commercial and industrial liberties of the latter are interfered with by the collection of a tax on the products of the aborigines the instant the same pass their frontier. Therefore, there would be no legal grounds upon which to oppose the establishment of a government monopoly of the camphor trade, within the limits of the island, under the immediate jurisdiction of the Chinese. But the privileges of the Emperor, in this respect, have been singularly affected by the existing treaties.

Heretofore, China could compel the foreign merchants, trading at the various ports, to deal exclusively with Chinese operators, called Hong merchants, or Cohong, and who had been licensed by the native government for that purpose. The practice proved to be so injurious to the foreign trade that, in 1842, the British took up the matter and made it a condition of peace to have it abolished. By Article V of the treaty of Nanking, of June, 1842, the Emperor of China agreed to permit British merchants residing at the treaty ports to carry on their mercantile transactions with whatever persons they might choose to employ. The aborigines or Formosa are not excluded; and therefore the restrictions imposed upon our dealings with them by the monopoly heretofore existing, could not be maintained, so long as the treaty remains in force.

**[P.49] Sundry Products.**

I am unable to report upon the manufacture of sugar, indigo, tobacco, and tea. Samples of all these staples I forwarded last year to New York. Except tea and sugar, they are mostly exported to Chinese ports in native crafts, and the wealthiest merchants of Banca are said to have accumulated their wealth in the indigo trade. Hemp, which grows in large quantities over the island, pith paper (*Aralia papyrifera*,) and sesamum seeds, the latter of which are used by the Chinese in the manufacture of oil, form also important articles of native export. A small cargo of this staple has been last year, as a mere essay, exported to England.

**Timber.**

I have collected a number of varieties of timber in Formosa, the value of which I do not know. Samples were forwarded to the Museum of Natural History of New York in 1867. Many of these woods are highly estimated among the Chinese. Among them the Kûng-moo, not having any oil, and the sap being tasteless, is much used for making wooden bowls, pans, &c., in which to place food. It is a close-grained wood, and is also used for the manufacture of Chinese wooden-soled shoes for wet weather. The Mau-muh is very common and grows to a great size. It is used principally for furniture, doors, windows, &c. The Chea-per, a very close, hard-grained wood, is much used in the manufacture of boat-oars, the handles of native hoes, and spades, rudders, and anything requiring to last long in daily use. It has great elasticity. The Chug-Kha-Ting, a wood used for ornamental purposes, such as the broad borders round Chinese tables, the centre of the table being of a lighter-colored wood. The Seaon-lau, considered by the Chinese as a most valuable wood, is one of the most expensive. It is much exported to Amoy and to other places, and wholly used for ornamental purposes, being well adapted for the light-colored centres of tables. The Cha-lew is another very valuable wood. This is principally used to make Chinese seals and stamps, also for in-laying ornamental furniture, or making small carved frames. The Sung-pih is a wood in great request among the natives, and much produced in the island. Great value is attached to it as a material for ship-building. The Chinese consider and believe it to be indestructible in water, and it would be worth while giving the wood a trial. The keel of junks is always made of it. The O-Ting grows to a great size, and is used to make planks. The Shwa-Sam, or native deal, is apparently very superior to that imported from the mainland. The Lung-Yuen produces a fruit very common in China, and has a shining black-stone, outside which is a thin white pulp of highly aromatic flavor enclosed in a hard shell resembling a skin of a grayish color. The Chang-Tz, or camphor tree, growing to a great size, needs no special description, its use being too well known. Besides these may be mentioned the Shwa-Lung-Yuen, or wild Lung-Yuen, the Kaon-Tsang, applied to the same use as the Chea-per; the Peh-poo, which much resembles the Kung-moo, and is used for the same purposes; the Pung-a, or wax-bearing tree, (*Stillingia sebifera*,) the seeds of which are used for the manufacture of

vegetable tallow; the Shiong-Lew, or willow tree; the Chee-Cha, used for making the ribs of Chinese umbrellas, and the black Ebony. In the Kamolang-Ting, the only district rich in forests accessible to foreign trade, two sorts of timber that could be used in the building of vessels abound – the Pan-mock, and the Chang-Tz, (*Laurus camphora*.) The first kind is reported by a competent explorer as [p. 50] being very abundant, and is said to give pieces from 24 to 48 feet long by 20 and 38 inches in diameter. All are straight and appear to be sound. They will give but few knees. The camphor tree is not so abundant, and does not grow so large as in the interior mountains of the island. Its height does not exceed 15 feet. The forests of the Kamolang-Ting are of easy access, and the transportation to the seashore would be inexpensive, if tramways were placed in the valleys and on the sides of the hills.