Eighth Meeting, 13th March, 1871.

MAJOR-GENERAL SIR HENRY C. RAWLINSON, K.C.B., VICE-PRESIDENT, in the Chair.

PRESENTATION.—*W. R. Portal, Esq.*

ELECTIONS.—*Sir James Anderson; W. Blackmore, Esq.; Richard Belgrave Jackson* (late H.M. Consul at Foochowfoo); *Sir Donald F. McLeod*, K.C.S.I., C.B.; *Captain James Nicol; G. Wm. Petter, Esq.*

ACCESSIONS TO THE LIBRARY FROM FEBRUARY 27TH TO MARCH 13TH.—'Annalen der Sternwarte in Leyden,' herausgegeben von D. F. Kaiser. Haag. Presented by the Director. 'Palestine Exploration Fund.' Quarterly Statement. N.S., No. 1. Presented by the Committee. 'A Thousand Miles in the *Rob Roy* Canoe.' By J. Macgregor. Presented by the author. 'The Voyage Alone in the Yawl *Rob Roy*.' By J. Macgregor. Presented by the author. 'The *Rob Roy* on the Baltic.' By J. Macgregor. Presented by the author. 'On the Chinese Dialect of Hainan.' By R. Swinhoe, H.B.M. Consul at Taiwan. Presented by the author. Forty Volumes of 'Sailing Directions' and Works on Navigation. Published by the Hydrographical Office of the Admiralty, and presented by the Hydrographer. 'Journal Asiatique.' Mai et Juin, 1870, and Periodicals to date. Paris.

The following works were presented by the Hydrographer to the Admiralty:—'The Channel Pilot.' Pt. I. 1869. 'The North Sea Pilot.' Pt. II. 1868. Ditto, ditto. Pt. III. 1869. 'The Channel Islands Pilot.' 1870. 'Sailing Directions for West Coast of Scotland.' Pt. I. 1867. 'Sailing Directions for Coast of Ireland.' Pt. I. 1866. Ditto. Pt. II. 1868. 'Views in the Baltic.' 1854. 'The Bothnia Pilot.' 1856. 'Sailing Directions: Ushant to Gibraltar.' 1867. 'España Maritima.' Vol. II. 1814. 'Sailing Directions: Candia or Crete.' 1866. 'Hydrographic Notice: Newfoundland, East and West Coasts.' 1868. 'Sailing Directions: South-East Coast, Nova Scotia.' 1867. 'The West India Pilot.' Vol. II. 1866. 'The South America Pilot.' Pt. II. 1865. 'The Vancouver Island Pilot.' 1864. 'The African Pilot.' Pt. II. 1868. 'The African Pilot: S. and E. Coasts.' 1865. 'The China Sea Directory.' Vol. I. 1867. Ditto, ditto. Vol. II. 1868. 'The Australia Directory.' Vol. I. 1868. Ditto, ditto. Vol. II. 1869. 'Australian Views: N.E. Coast.' 'A Method for finding the Latitude by simultaneous Altitudes of Two Stars.' By J. Bardwood. 1869. 'Tables for the Reduction of Meridian Altitudes.' By J. T. Towson, F.R.G.S. 1862. 'Tables to facilitate Great Circle Sailing.' By J. T. Towson. 1861. 'Sun's True Bearing.' By J. Burdwood. 1869. 'Rules for Finding Heights and Distances at Sea.' By Lieut. H. Raper. 1866. 'Practical Rules for applying Deviations of Compass caused by the Iron in a Ship.' 1868. 'Admiralty Manual: Deviations of the Compass.' 'Admiralty Lists of Lights:'—1. W.S. and S.E. Coasts of Africa; 2. Coasts and Lakes of British North America; 3. The United States of America; 4. South America and Western North America; 5. The North Sea, Baltic and White Sea; 6. South Africa, East Indies, China, Japan, Australia, Tasmania, and New Zealand; 7. The Mediterranean, Black, and Azof Seas; 8. The West India Islands, &c. All corrected to Jan., 1871. 'General Instructions for the Hydrographic Surveyors of the Admiralty.' 1832.

ACCESSIONS TO THE MAP-ROOM SINCE THE LAST MEETING OF FEBRUARY 27th.—Map of a portion of Eastern Turkestan, to illustrate the Expedition to Yarkand in 1870. By T. D. Forsyth, Esq., C.B. Presented by the author. Plan of Yarkand and of Yangi-Shahr, or New Town. Presented by T. D. Forsyth, Esq., C.B. A Bust of Charles Dickens. By W. F. Woodington, Esq. Exhibited by the author.

The following paper was read:—

Mr. Thomas Baines's Exploration of the Gold Region between the Limpopo and Zambesi Rivers. Compiled from his Journals by ROBERT JAMES MANN, M.D., F.R.G.S.

THE exploration described in this communication resulted from an endeavour made by a company of gentlemen in London to get the geographical and mineralogical character of this district settled by a careful and formal examination. The expedition was placed under the charge of the well-known South African traveller and artist, Mr. Thomas Baines, with Mr. Nelson, a well qualified mineralogist, for his associate, and he had most judiciously and admirably accomplished the task entrusted to him. The communication was drawn up from Mr. Baines's very voluminous Journals sent home from time to time.

The expedition left England on the 19th of December, 1868, and passed through the colony of Natal in the month of February following. It next passed through the Orange River Sovereignty and the Transvaal Republic, and, crossing the Marico River near its confluence with the Limpopo, outflanked the main channel of that stream, and ascended the chief ridge of watershed lying between

it and the Zambesi River, until the 17° 30′ parallel of s. lat. was reached, a little to the west of the 30th meridian of E. long., within 120 geographical miles of the Zambesi River, on the 3rd of September, 1869.

Dr. Mann gave a sketch of the geography of this region, from the Orange River to the Zambesi, to illustrate the exceptional configuration of the great line of watershed lying between the Limpopo and Zambesi rivers. The Limpopo is here pushed up into a vast loop by the Drakenberg Mountains, and a broad gap then occurs, before these mountains are continued through to the mountains of Lake Nyassa, and beyond to the northwards. Throughout this range the water-parting is within 150 miles of the Indian Ocean; but from the 22nd parallel of s. lat., for some 360 geographical miles of breadth, the water-parting lies within 300 miles of the Atlantic, and the Zambesi flows almost entirely across the African continent towards the east. The highland to the south of the Zambesi fingers out towards the sea over Marico and Sofala, giving rise to a series of secondary coast rivers; but in the other direction it extends on either hand to the precincts of the Kalahari Desert and the sources of the Congo. The Gold Region explored by Mr. Baines's Expedition lies in the heart of this highland.

Having crossed the Marico River, Mr. Baines paid a passing visit to Matjen, the Chief of the Bamangwato, and describes his chief place, Shoshong, as a large cluster of shabby huts, reached through a luxuriant valley laden with waving corn. The chief Matjen was the son of Ingwato, from whom the tribe of Mangwato—or, with the plural prefix, Aba-Mangwato (Bamangwato)—takes its name. When a lad, he was in thrall to Mosilikatze, and had been placed in his present position through the friendly offices of the elder Moffat, with the River Macloutzie appointed for the boundary of his territory.

The River Macloutzie was crossed on the 7th of June, and a short visit paid immediately afterwards to the Miners' Camp at the Tati River. There were at that time several parties working there in shafts 50 feet deep, which had been made by jumping and blasting. The miners were, however, chiefly endeavouring to make their way to a richer lode. The River Tati is a feeder of the Shashi, which joins the Limpopo at its north-eastern head, near to Zoutpansberg.

Nine days after leaving the Tati, Mr. Baines reached the Mungwe River, where he found an Englishman, Mr. Lee, acting as the accredited agent of the Matabele tribe, the first outposts of that tribe being at Manyama's place, one day's journey farther on.

Between the Macloutzie and Manyama's outpost, the country belongs chiefly to the Makalaka Kaffirs, who are, however, held in subjection by the Matabele.

At Manyama's it was determined that messengers must be sent on into Matabele land, to announce the visit of the Expedition bearing letters from the Governor of Natal to the Matabele chief. The messengers returned in fifteen days, with instructions to take Mr. Baines on to Um-Numbata, who was at that time acting as a kind of temporary regent to the tribe, in consequence of the recent death of the old chief Mosilikatze—more properly known as Umseligase—and some uncertainty as to who was to succeed to the chieftainship.

The Matabele tribe is, in reality, one of the great offsets of the warlike and aggressive Zulu tribe of the south-eastern coast, and is marked by the same leading policy and characteristics. One of the wives of Umseligase was a daughter of the Amaswase chief Umsitu; and Zulu, who gave the name to the great Coast tribe, was a brother of this Umsitu. This wife of Umseligase had two children; of whom one was named Kurumane, most probably from the station of the friendly missionary Moffat. This lad had come up with the Matabele tribe from the south-east, when about seven years old, driving oxen before him. The oxen went to the north-west as they multiplied; but, upon a certain occasion, when Umseligase was on the Zambesi River, the party with whom Kurumane was became compromised in a suspected conspiracy, and their kraal was ordered to be destroyed. Kurumane disappeared from this time; but it was now said that his life had been intentionally spared under Umseligase's orders, and that he was living in seclusion in the colony of Natal. One section of the Matabele people, under the leadership of an old chief called Umbigo, who was not properly a true Matabele, were looking to the succession of Kurumane. But a much larger section of the people, under the regent Um-Numbata, were looking to the son of a younger wife of Umseligase, known as No-Bengule.

In passing the Un-Kwesi River, illustrations were encountered of the aggressive spirit of the Matabele. There were blackened ruins of the kraals of a chief called Makhobo all over this district, who was said to have been destroyed, with all his people, as lately as the year 1864. As Mr. Baines was travelling to the Inyati mission station, at a later period, a party of armed Matabele passed him, who had been avowedly sent to intercept messengers despatched by Umbigo to communicate with Kurumane, but who were driving a herd of Mashuna cattle before them, which they had taken, as they explained, to pay the cost of the expedition.

Mr. Baines started with his own party, the two messengers, and Mr. Lee, on the 6th of July. About 12 miles from Manyama's, and 23 from Mungwe, the crest of the great watershed was reached. It was in Lat. 19° 42 49″ s., about 80 geographical miles N.N.E. of the Tati River Camp, and was crossed at an elevation of about 5052 feet, the aneroid barometer standing at 24·64 inches, and water boiling at 204·1 degrees of Fahrenheit. The nights at this time were generally below freezing temperature of the thermometer, and on one occasion descended to 24·5°.

The Kumalo River, the first affluent of the Zambesi system, was reached on the 8th of July, and one of the two wagons was left behind, while the second went on with Mr. Baines, Mr. Nelson, and Mr. Lee. The head-water of the Gwaii, or Tobacco River, at the junction of which with the Zambesi Mr. Baines had been in 1862, was passed, on July 12th, at a spot which was estimated to be about 130 miles from the Zambesi. Umbigo's Kraal, on the Im-Pembis River, was reached on the 14th of July, and from this a direct route was made to Um-Numbata's Kraal, known as Manpanjeni, to the east. The Natal Governor's letter was read and explained to the old chief by Mr. Lee, and the object of the exploration gone into. Um-Numbata at once said that he could give the free permission for the exploration, but that Mr. Baines must come back to him, and give an acount of all his proceedings before he left the country. Um-Numbata said he knew what it was to have to travel so far, for he had himself been twice sent to the Great Sea by Umseligase. It appeared that he was one of the two messengers whom the elder Moffat had accompanied back from Kurumane, to protect them from surrounding hostile tribes; which circumstance was the commencement of the friendly relations with Umseligase which led to the establishment of the Inyati mission station, upon the occasion of Dr. Livingstone's return to England, from his journey to Loando, in 1856.

On the 7th of August the northward journey was resumed with one wagon. The route now lay along the northern slope of the watershed and over the head-waters of the various affluents of the Zambesi. Beautiful mountain-streams, fringed with overhanging trees and edged with water-lilies, stretches of bare rocky granite-encumbered ground, and sloping valleys green with Mimosas and Bauhinias, and variegated by large aloes and the Candelabra Spurge, were passed in succession. At the River Imbeela, a little beyond the Serua, the elephant-hunter, Mr. Hartley, was found. On the 1st of September, a Mashuna chief, named Amakonda, took Mr. Baines over the Chingasora River to a high quartzose region,

where there were a series of old Mashuna workings for gold; and, on the following day, to another group of workings on the Kanyamatimba River. From this until the 17th of September the country was explored in all directions. On the 9th, a very successful hippopotamus hunt was enjoyed, in a pool 9 miles down the Ganyami River. The extreme point reached was in Lat. 17° 35′, probably within 50 miles of the Luenja branch of the Zambesi, well known to the Portuguese as yielding gold. Some days were now spent in careful examination of some very interesting Mashuna workings that had been pointed out by Mr. Hartley between the Simbo and Serua rivers. This spot was in 18° 10′ s. lat., and 30° 50′ E. long., and at an elevation of 3525 feet above the sea. High ground in the immediate neighbourhood was designated "Hartley Hill," in compliment to the veteran hunter.

The workings were on elevated ground on two distinct ledges of quartz, about 500 yards asunder. The reefs had been broken up into shallow pits from 6 to 8 feet deep, which are now filled up with the refuse fragments of broken rock. In some of the pits trees, 4 and 5 inches in diameter, had grown. The workings seemed to be at most from 150 to 200 years old. They are certainly the handiwork of a people who are known as Mashuna Kaffirs, who occupied the district before Umseligase and the Matabele attacked them and drove them back towards the Zambesi. These Mashunas are a friendly, industrious, peaceable, and very ingenious tribe. They make fine iron from magnetic iron-ore, grow cotton, and weave textile fabrics, and are in these particulars far in advance of other tribes occupying the neighbourhood. How, in the absence of suitable tools, these ingenious people managed to break up the hard quartz-reefs remains still a mystery. But it is quite clear that the choicest fragments of quartz taken from the reef were pounded in holes in the hard rock by round stones, and that the crushings were then washed in bowls of wood and clay.

Recognisable beacons were placed round these workings, and a formal application for a cession of this particular piece of ground to the Company for mining purposes was agreed upon.

The quartz-veins contained in this ground were enclosed in gneiss and a mixture of talcose and chloritic slates. The stratified rocks throughout the district were, however, so hardened and metamorphosed, that it was not easy to refer them to their proper geological age. The breadth of the veins below could not be satisfactorily determined, on account of the way in which they were buried in the débris of fragments. Specimens taken from te débris somewhat promiscuously have been submitted to careful assay

in England. These specimens yielded gold at the rate of 0·85, 0·97, 1·95, 3·12, 3·50, and 8·15 ounces per ton. From one choice piece of quartz there was a return of gold at the rate of 60·75 ounces, and of silver at the rate of 17·1 ounces per ton. There can be no doubt that the specimens selected by the Mashunas from this refuse had been of a still richer character. Granite forms the foundation ridge of the watershed, and is in many places intersected by felspathic greenstone, and associated with different forms of gneiss and hornblende schist, and with a hard rock containing talc and quartz. A dark-coloured slate-formation, about a mile across in places, forms high perpendicular bluffs on both sides of the river-channels. This slate-band also forms regular mountain-ridges that can be seen for a long distance. The quartz-veins are mainly contained in this slate. The gold occurs where the stratified rocks come into relation with the central granitic axis, and not in the granite itself. Hence gold is found among the affluents of the Limpopo on one side, and among the affluents of the Zambesi on the other side of the crest of the watershed. Small quantities of alluvial gold are found in some of the rivers, especially in the river Ganyami.

On the 1st of October Mr. Baines received a message from the Inyati mission station, intimating that all white travellers were required to withdraw from the Matabele territory until the question of the succession, now coming to a crisis, had been determined. He accordingly forthwith began to retrace his steps, availing himself of every opportunity to extend the exploration of the country by the way. The station of Inyati was reached the 21st of October. Shortly afterwards a visit was made to Um-Numbata to report progress, and to No-Bengule to solicit his friendly regard. The month of November was spent at the Mungwe River, and Christmas at the Tati settlement. On the 4th of January, 1870, Mr. Nelson started from the Mungwe River to convey the general report of proceedings to England. On the 10th of January Mr. Baines and Mr. Lee went off from the Mungwe to pay a second visit to No-Bengule, who was then at a place called Um-lhlatlangalor, 60 miles from the Mungwe, and 7 miles from the Kumalo River, on the east slope of the watershed. They found several distinguished Indunas, Fortress-Mouth, Umtigaan, and the fighting general of the tribe, Umkaitcho, among them. Bands of warriors wearing the black ostrich war-plumes and cloaks were arriving daily; and they were told that they had better say nothing more regarding Kurumane, as there was now no belief in his being alive. It appeared, from conversation with the chiefs, that the Ramakhoban River district was considered Mr. Lee's hunting-ground, and that it was desired he should hold himself responsible for white men visiting that region. He, however, considered it quite impracticable to assert exclusive rights there. The Transvaal States had claimed the territory up to the Ganyami and Gwaloo rivers. They had, indeed, named a parallel of latitude as the northern frontier of the states, but had admitted that they had no means of determining this parallel. Mr. Baines's remark was that they had about as much chance of exerting any real influence over this wide open region as the "watch dog that scares a wolf from the traveller's wagon." No-Bengule was very cordial to Mr. Baines, breakfasting with him in public; and it was arranged that he was to return again to see him after the completion of his installation as chief, for which ceremony it now appeared the Matabele people were gathering. In about six days Mr. Lee was recalled from the Mungwe to be present at the ceremony, which consisted in a dance of 9000 warriors, mainly remarkable for the identity of its character with the ceremonial dances of the warlike Zulus. The champions who advanced themselves from the ranks from time to time, to proclaim their individual prowess, were loud in their denunciations of the "Man in the Sea" (that is, the reputed Kurumane), and included in their denunciations all who wrote letters concerning him, and carried those letters, or, indeed, even read them. On the 23rd of January, the first act of authority was performed by No-Bengule in selecting oxen for sacrifice—the black oxen being offered to the memory of the defunct chief, and the speckled ones to some supreme power who was spoken of as "Molimo." On the 5th of April, Mr. Baines again came up to No-Bengule, taking the opportunity to perfect his examination of the geography of the watershed by the way. He then ascertained that the gold-workings at Hartley's Hill were certainly within 174 miles of a navigable river, by the Sabia route. He found No-Bengule at a spot where a new royal kraal, to be called Gibbe Klaike, was in process of formation. This spot is a short distance from Um-lhlatlangalor, on a slope on the southern side of the watershed overlooking a broad expanse of ridges and valleys which run down either to the Limpopo or the Sabia river. Mr. Baines now proposed to No-Bengule to cede to him the land lying between the Gwaloo, or U'gwelo, and the Ganyami River, for mining purposes. After two or three interviews, No-Bengule told him he could not alienate the land, but that he was prepared to give him permission to explore for gold in that region, and to introduce tools, implements, and necessary material, and to erect storehouses and dwellings, and that Mr. Lee was to be accredited as the agent for mutual communication

between the chief and Mr. Baines; while, with No-Bengule, Mr. Baines prepared a general statement of Matabele affairs for the use of the Colonial Secretary in Natal; and this letter was read over to No-Bengule, and, with some trifling corrections, approved by him. No-Bengule kept Mr. Baines with him at and in the vicinity of Gibbe Klaike, in constant friendly intercourse, during seventeen days, and then parted with him with apparent unwillingness. The latitude of the New Kraal was determined to be 20° 18′ 11″ s. The parting present to the chief consisted of Mr. Baines's own riding horse, two bags of gunpowder, two bars of lead, a box of percussion-caps, a pair of white blankets, and a white grass-cloth coat. No-Bengule walked half-a-mile with the departing wagons, and told Mr. Baines that his heart was sore at losing the companionship of his white friends.

At Gibbe Klaike Mr. Baines met Captain Elton, who communicated to him his purpose to descend the Tati and Shashi rivers, to the Limpopo, in a boat—a feat which he has since happily accomplished—losing his boat somewhere on the Limpopo, and making his way across the Wild Veldt to the Portuguese station of Lorenzo Marquez, at Delagoa Bay. Captain Elton was at Lorenzo Marquez on the 8th of September, and was then going on with the British ship *Wainwright* to Quillimaine.*

Mr. Baines left Gibbe Klaike for the Inyati mission station on the 24th of April. The last section of his Journal which has been received was dated from Inyati on the 2nd of May, 1870. Letters have, however, been more recently received, which show that he was again at Gibbe Klaike, and holding personal intercourse with No-Bengule, on the 19th of November, 1870. The chief had then confirmed him in all his privileges. He had asked him how much gold he was going to take away, and what he proposed to give him "as big as the gold;" but was most careful to have it understood that this did not mean selling the land. It was finally arranged that the difficulty was to be met by an annual present for the right to explore and mine between the Gwaloo and Ganyami rivers. Mr Baines had at this time again been up to the district in this locality, and had collected fresh specimens of gold-bearing quartz and commenced the construction of a house near Hartley's Hill. He found that the Mashunas had resumed operations, having placed a quantity of crushed quartz in layers alternated with wood, obviously with the intention of roasting the mineral. He had purchased a

* Captain Elton was wrecked in the ship *Wainwright*, near Inhambane, and after many perils by land and sea, returned to Durban in the *Roe*, in April last.

small quillful of gold, and was told that the rest of the gold-harvest had gone down to the chief Watah (whose town is a short distance to the N.E. of Hartley's Hill) on its way to the Portuguese settlements. On the 8th of December, No-Bengule's wagon had returned from Natal with information that the man there reputed to be Kurumane was certainly not so. On the 7th of January, 1871, Mr. Baines was at Potchefstroom, in the Transvaal State, where he had seen the Portuguese Governor of Quilimane, Signor Carlos C. B. è Costa, who had protested against any gold-mining being carried on in the Matabele land without the permission of the Portuguese Government. Mr. Baines had, however, been able, by reference to the Governor's own maps, to prove that the district in question, between the Gwaloo and Ganyami rivers, and comprised within the 19° 11′ 51″ and 17° 44′ 56″ of latitude and the 29° 50′ 10″ and 30° 41′ 20″ of longitude, could, in no sense, be held to fall within Portuguese territory or Portuguese jurisdiction.

The paper will be published, with a map, in the 'Journal,' vol. xli.

Sir JOHN SWINBURNE said that he had frequently met Mr. Baines in the country which had been described, during the year 1869. On his arrival with a small party at the Umfule River, in the month of July, he explored a great number of old gold workings. It was an unusually dry season, and the natives had set fire to the grass, reducing the rank herbage to a mass of black ashes, in which one walked ankle-deep. Consequently, the bullocks drawing the wagon were nearly starving; and his party were but little better for some days, as the game with which this part of the country abounds was so lean as to be almost uneatable, and the sheep they had taken with them were reduced to a weight of 25 lbs., being little better than living skeletons. Leaving his party (with the few remaining ounces of tea, sugar, and flour) to prove the value of the gold-reefs at the Umfule, he started, with his faithful servant Murphy (in quest of food), for the Mashuna tribes, who live on the eastern slopes of the watershed which divides the rivers running direct into the Indian Ocean from those running to the west and falling into the Zambesi. They travelled about 90 or 100 miles to the south-east, until they arrived at the watershed, whence they descended a short distance down the eastern slope, where they came across the first Mashuna village, named See-sow. The first intimation he had of the presence of natives in that neighbourhood was hearing, one frosty morning, most harmonious singing in the distance. He at once started off in the direction in which he heard it; and found the village some 3 miles off, situated in the cliffs and fissures of enormous granite boulders. The voices which had been heard such a distance were those of the bellows-blowers of a small blast-furnace, which was kept in blast night and day, just outside the stockade of the village. This furnace was a perfect miniature of a blast-furnace in England, height about 4 feet—the whole being made of fine clay; orifice at top, about 8 inches in diameter. The ore was a red oxide of iron, in a laminated form, not very rich. About three handfuls of charcoal were put in to one of ore, the latter being previously broken into the size of hazel nuts. The blast was formed by four goat-skin bellows, worked by two persons holding a skin in each hand, a wooden nozzle leading from the leg of the goat-skin to a clay tuyere, the open mouth of the skin being closed by the

hand when pressed down. By this means a most perfect and continuous blast was kept up. The ore was not reduced to quite a fluid state, but when drawn out—which took place about every six hours—it was in a coagulated condition. A half-broken stick drew it out from within the screen which surrounded the furnace, and the bloom was then beaten with a club to rid it of slag. Each bloom weighed about 12 lbs. The charcoal and ore were obtained in the immediate neighbourhood, while the tuyeres, bellows, and baskets for carrying ore and charcoal were made on the spot. In fact, nothing could be more simple and effective than these miniature iron-works. The whole of the villagers appeared to take their turn in keeping up the blast. Very good iron hoes, weighing about five pounds, were bought for a quarter of a pound of beads, worth about a shilling. The Mashunas are very expert in the making of iron hoes, spear-heads, iron beads, anklets, and keys for musical instruments. But they did not manufacture tools at this village, but handed the iron over to their friends a few miles off, who made it into various implements and ornaments. The women at this village especially delight in loading their legs with iron rings as thick as one's middle finger. On some he counted no less than seven of these manacles on each leg, which greatly incommoded their walking; but to be dressed in the height of fashion, here as all over the world, they cheerfully submitted to hardships which any European convict would have rebelled against. As far as he could learn, these rings were put on when the metal was red hot; but to accomplish this they must have covered the leg with raw hide, or some such protection, as they fitted almost tight. At this village of See-sow they were exceedingly hospitable, supplied him with everything as far as their means would allow, and gave him every information, and stated that at the next village we could procure some sheep. Three or four miles from this village they met a trading party with neatly-made spear-heads, hoes, and axes. They were on their way to tribes further to the south-east, who were in direct communication with Portuguese traders, and expected to get glass beads and cotton cloth in exchange for their ironwork. A large trade appears to be done by these Mashunas in iron implements. These travelling parties of traders generally have three or four musical instruments, with which they divert themselves when resting between their toilsome marches. It is a point of etiquette to receive strangers with music; and on this occasion they entertained us with strains from Pandean pipes, a tambourine, and the *sansa*,—an instrument formed by a number of iron keys, fixed on a frame inside a large gourd, which latter acts as a sounding-board. Five miles from See-sow they arrived at Inyorka's (the Serpent) Town. Inyorka had in his youth been addicted to appropriating his neighbours' property, and, consequently, when on one occasion he was captured by his enemies they cut off both his hands. His people were greedy traders, and were so overreaching and exorbitant in their demands that little could be obtained from them. The women, who always conduct the sale of corn and all products of the land, were exasperated at the grasping spirit shown by their lords, and, setting them at defiance, told them in very strong native language to keep the sheep and cattle, but they were not to be deprived of the opportunity of obtaining beads and cloth; consequently, we obtained as much maize flour, millet, ground nuts, fowls, eggs, rice, &c., as our wagon could carry. All over South Africa it appears to be the custom to consider the garden produce as the women's especial property; and naturally so, as they do the greater portion of the agricultural labour. While trading at Inyorka's, a noted chief of the name of (in English) Stay-at-home, arrived. He had been given this name from having remained to defend his town, situated on a high pinnacle of rocks, from the Matabele when all his subjects had deserted him. Of course, his town was taken; but the Matabele, respecting his gallant conduct, gave him his liberty. On Stay-at-home's arrival at the wagon, with a whole company of followers, he was received

with great honour by the women, who raised a peculiar cry, or rather howl, by rapidly clapping the hand over the mouth.

Having obtained as much corn, rice, &c., as the wagon could carry, and a few sheep, they returned to the Umfule with the welcome supplies. A fortnight later, letters came up, requesting that all the white men should immediately return to Inyati, and remain there until the new king, No-Bengule, was crowned, and formally installed as supreme chief of the Matabele. This was much to be regretted, as so short a time did not suffice for a thorough testing of the numerous gold-bearing reefs in the neighbourhood of the Umfule.

With regard to the southern gold-fields, which are known to extend over the whole of the district lying between the rivers Shashi and Ramakoban—which country has been conceded to the London and Limpopo Company—there are numerous reefs of auriferous quartz, nine of which have been more or less explored.

In most of the mines two shafts have been sunk to an average depth of 50 feet: one shaft in the Blue Jacket Mine is 65 feet deep. The reefs consist of quartz, between walls of chloritic schist. The strike is from north-west to south-east, and the dip about 50° to the south-west; they vary from a few inches to 6 feet in width. There are two descriptions of quartz. One red and honeycombed, and containing much oxide and white iron pyrites; traces of sulphurets and carbonates of copper are also met with; the gold is fine, and mostly found in the oxide of iron, only now and then it is seen in the white quartz without iron. The other kind of quartz is of a bluish-grey appearance, without any iron, and of a finer texture; this quartz is found in the Blue Jacket Mine, 3 miles to the eastward of the main Tati settlement, in a vein 6 feet thick; the gold in this quartz is coarser, and more evenly disseminated than in the red ore. Three shafts have been sunk at the Blue Jacket Mine to the depths of 20, 52, and 65 feet respectively, and the vein worked to the depth of 68 feet; the dip is about 45°. Between the front wall of this vein and the country there is a layer of slate casing which contains gold; this slate is sometimes exchanged for a thin, hard layer of cement, when the ore is usually richer. A seam of calcareous rock is always found where the reef is jointy; some of the whitest quartz contains good samples of gold, and the ore grows richer as the depth increases.

The Flyblow Mine is 10 miles north-west from the settlement. Two shafts have been sunk to the depth of about 50 feet. The reef is 13 inches thick, but very rich, as it is calculated to return four ounces to the ton; but the containing rock is very hard, which makes the working expensive.

The New Zealand Reef is within 500 yards of the settlement and Tati River. No. 1 shaft has been sunk to the depth of 70 feet, and a level driven along the reef about 7 feet in height and 20 feet in length. The reef is 18 inches thick, and will pay from one to two ounces per ton of ore. No. 2 shaft is sunk to the depth of 60 feet. The walls are of chloritic slate.

The Ramakoban, or Halfway Reef, is situated 13 miles north-east of the Tati settlement, and 7 from the Ramakoban River. The reef varies from 5 to 7 feet in thickness. The reef containing gold can be traced along the surface for over 500 yards; and only two shafts, 20 and 25 feet respectively, have been sunk on this mine, for want of means.

The New Mine is within 3 miles of the Halfway Reef, and is very similar. The reef can be traced for 200 yards on the surface.

From the Blue Jacket, which has been opened out to a greater extent than the other mines, 38½ tons of ore produced no less than 71 oz. 13 dwts. of gold, worth 3*l.* 15*s.* per ounce, being at the rate of nearly two ounces to the ton; while two other small parcels, of 2½ tons each, produced no less than 16 oz. 10 dwts. and 26 oz. of gold respectively. These parcels of ore were

from another mine higher up the River Tati. These results were obtained by means of a small Natal-made stamp-mill, which was sent up by the London and Limpopo Company, more with a view of practically testing the value of the reefs than as a permanent piece of machinery. Steps are now being taken to send up heavy machinery, when a large and steady supply of gold may be expected to be yielded. The healthiness of the climate, the abundance of provisions, timber, and water, should make these mines capable of being very cheaply worked; especially as, by accounts lately received, the Makalakas—a tribe of hard-working natives, subject to the Matabele—are willing to work underground, and soon become as efficient miners as the white men, only requiring to be directed by a white overseer. He had much pleasure in now showing them an ingot of gold, weighing no less than 28 ounces; and he had just received another parcel, weighing 40¼ ounces, both the produce of the Blue Jacket Mine. When it is considered that in the great auriferous quartz-mines of Brazil and Australia 4 dwts., or one-fifth of an ounce, is sufficient to cover all expenses, it will be seen that these returns promise very large profits. When, in 1868, through Mr. Mauch's explorations, these gold-fields came into notice, numbers went up from the colonies, hoping to find alluvial deposits of gold, and returned much disappointed; for, although the river-sands produce traces of gold, it is almost physically impossible to have rich alluvial deposits, as the country is nearly flat at the sources of the rivers. The only thing required was a settled and strong government, and he wished the British Government would take the Matabele race under their protection. The natives desired it exceedingly, and he hoped he should live to see the day when the whole of the country south of the Zambesi would be under British rule; for at present slavery, in some of its worst forms, and kidnapping, is carried on by the Dutch boers on the frontiers of the Transvaal Republic, which leads to reprisals being made by the Kaffirs. He concluded by expressing his thanks for the valuable assistance and information given him by Mr. Baines in that remote country.

Mr. GALTON said Mr. Baines's contributions to geography from this last journey were very considerable, the map which he had made being in reality an itinerary through a district extending over more than 750 miles. Probably no living man, not even excepting Dr. Livingstone, has been so pertinaciously engaged in travelling as Mr. Baines. Twenty years ago he made his first expedition northwards in Africa, but was driven back; afterwards he went to Australia, and was connected with Mr. Gregory's exploration; then he joined Livingstone in exploring the Zambesi; next he travelled on the west side of Africa; and now he was engaged in examining the gold-fields near the Limpopo. His pictorial contributions to geographical and ethnological knowledge were exceedingly numerous and valuable.

The CHAIRMAN said that General Rigby, who was for a long time Consul General on the Coast of Zanzibar, had told him that for many years past a very extensive trade in gold had been carried on upon the African coast, but he thought the gold did not come from a district as low down as the Limpopo, but rather from the country between the Limpopo and the Tanganyika Lake. No traces of gold had been found by Burton, Speke, or Grant, or any other travellers, north of that lake. A line of gold deposits probably connected that district with the quartz formations which had been described. One of the great objects of the Royal Geographical Society always had been and always would be to combine, as far as possible, geographical science with practical economical results, and he therefore trusted that the Society would approve of the Council's having brought before them this subject of the South African gold-fields.