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ORIGINAL ARTICLES.

I.—NOTES ON THE GEOLOGY OF MASHONALAND AND MATABELELAND.

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INTRODUCTION.

THE history of the Zambesian territories now known as "Rhodesia" is extremely meagre. Of the country prior to the advent of the Matabele in 1838, little is known, except from the few records, chiefly Portuguese, that have been preserved. It should be mentioned, however, that an interesting link between the Sofala and the Zimbabwe ruins near Victoria exists in certain gold tacks or rivets, possibly used in the manufacture of gold ornaments, which have been found in both these places, while we believe that at intervals along a route to the coast, ruins of towers have been found, that in all probability have been used as stations on the way.

That Zimbabwe, near Victoria, and similar ruins in other parts of Central South Africa are relics of the greatest antiquity, is generally accepted, and it is also probable that a search after gold was the main object of the adventurous and enterprising people, not South African, who were in possession. The massive structure of the ruins, laboriously composed of regular square granite blocks, not much larger than bricks, together with the general design and elaboration, foreign to Negro creations, impress one with the idea that a masterful invading race dominated the enslaved aborigines.

One portion of the Zimbabwe ruins of Victoria was probably a temple, the other a stronghold or keep such as might have been necessitated by the partial and unstable nature of the sway exercised by the invaders.

It is probable that in later times, even within the last century, the Portuguese had settlements in Mashonaland, and that they both carried on mining operations themselves, and traded for gold won by the natives. In the north, at Tete, on the Zambesi, alluvial gold can still be purchased from the natives. The gold is collected by them in reeds.

The later facts of history are briefly as follows :—Mosilikatse, driven from the Transvaal by the Boers in 1837, crossed the Limpopo, and by dint of his warlike propensities, and the valour of his Zulu followers, established in the course of three years a mastery over the greater part of Central South Africa between the Limpopo and Zambesi Rivers, creating the Matabele supremacy. This supremacy he and his son and successor, Lobengula, maintained until the series of events following the formation of the British South African Company culminated last year in the Matabele war, the overthrow of Lobengula, and the occupation of Matabeleland by the adventurous and plucky 800 who advanced to Buluwayo.

TOPOGRAPHICAL AND PHYSICAL FEATURES.

The area of Matabeleland and Mashonaland, now consolidated, is upwards of 135,000 square miles. The territory has no seaboard. The nearest coast is that of Mozambique, Sofala being about 108 miles, and Beira 160 miles from the border. The eastern boundary as regards Portuguese territory has not yet been finally agreed upon. It is probable that it will be about the 33rd degree of east longitude, with a tongue projecting westward to include Masse-Kesse in Mozambique. Some distance south of Masse-Kesse the boundary trends westward, ending about the intersection of the Limpopo River and 32 east longitude. The western boundary of Matabeleland proper is indefinite, but the Chartered Company's rights, so far as the British Government is concerned, are co-extensive with the British sphere of influence, between the Limpopo and the Zambesi, exclusive of Bechuanaland, reaching as far as longitude 25 E. The backbone or "hogs-back" of the country is formed by an irregular belt of high plateau land, or high "veldt" as it is termed in South Africa, with an altitude varying from 3500 to 5000 feet. This belt, embracing the most salubrious portions of Matabeleland and Mashonaland, stretches from south-west of Buluwayo, in a north-easterly direction to Umtali in Manicaland, passing just north of Victoria, but including Salisbury. It forms the main divide of the river systems of the country, being the source of the tributaries of the Limpopo or Crocodile River and the Sabi River on the south, and those of the Zambesi on the north.

There can be no doubt that the country is on the whole well-watered; and although many of the smaller streams are mainly replaced by broad beds of sand in the dry season, still the traveller can scarcely ever be said to suffer from scarcity of water, either for his own needs or for his cattle.

GEOLOGICAL STRUCTURE.

That the physical features of a country are to a large extent dependent on the geological formations which compose it, is nowhere better illustrated than in Mashonaland and Matabeleland. The rocky structure is remarkable for its uniformity over large areas;

in like manner the scenery and physical characters are strikingly persistent. Sedimentary deposits are of rare occurrence. The great bulk of the country is granite, the remainder being formed chiefly of metamorphic rocks; the whole doubtless constituting a portion of that ancient floor of granite and metamorphic rocks that elsewhere underlie the subsequent sedimentary or igneous accumulations. It is of course possible that this vast area of granite and metamorphic rocks was at one time wholly or partially covered by detrital deposits; but if so, they have been subsequently denuded and only in isolated instances do any traces of them still remain. Sandstone deposits with workable beds of coal are said to occur near the Zambesi, north of Buluwayo. Sandstones, grits, and conglomerates are also reported to occur in the Victoria district, but under what geological conditions we are unable to say. In any case, however, we can state that the major portion of the surface of the country is underlaid by granite rock forming broad expanses of flat or rolling veldt, from which rise occasionally huge agglomerations of immense boulders and fantastically shaped kopjes, the home of the despised Makalakas and Mashonas, where they were used to seek refuge from the raids of the Matabele. At intervals, too, the granite rises into rugged mountain ranges with rude broken outlines, and scored and scarped bosses of bare rock, as for instance in the Matoppo Hills, south of Buluwayo.

Turning now to the metamorphic rocks or schists which constitute the gold belts of the country, we find them occurring as broad bands and patches in the granite. In passing from an area of granite to one of schist the traveller is struck by the contrast presented by the two types of scenery. The country loses its bare and rugged aspect; the contours become soft and more undulating or even hilly; the soil, hitherto sandy and sterile, becomes clayey and fertile; the hills are covered with trees, and give rise to numerous streams; and in some of the districts (the Seleukwe and Victoria) the alternation of thickly wooded hills with fertile valleys forms scenery that would be noted for its beauty in any country. To what geological conditions may these differences in scenic or physical features be ascribed? We think the more broken character of the schist country is due to the variable nature of the component rocks, and to the fact that they are turned up on edge, rendering them more susceptible to the attacking forces of atmospheric disintegration.

THE ORIGIN OF THE GOLD BELTS.

In discussing the origin of the auriferous rocks, a series of interesting questions present themselves for solution.

1. What is the geological relation of the schist to the granite?
2. Why are the auriferous veins chiefly confined to the schist belts and their immediate neighbourhood?
3. Is there any community in origin between the veins and the schists?

We will endeavour to find answers to these questions. The rocks

composing the metamorphic series are chiefly chlorite and hornblende schists, with which are associated epidiorites, actinolite rock, diabases, dolerites, and other basic igneous rocks. The intimate association of basic igneous rocks with the schists was a fact we have had ample opportunity for noting, and our observations lead to the conclusion that the schists have been derived in great measure from those rocks, and that their foliated or schistose structure has been produced by a mechanical process analogous to "shearing" and referable to certain movements of the earth's crust along zones of fracture or weakness.¹

The sequence of events in the formation of the schists would be somewhat as follows:—The granite crust acted upon by enormous lateral pressure and tension produced by shrinkage, folding, and rucking would tend to develop main lines or zones of strain, weakness, and fracture, through which the molten basic magmas hitherto pent up within the earth's crust would be forced up to form dykes and intrusive masses of igneous rock along these zones. The earth-movements, continuing along the main lines of fracture, would effect the mechanical metamorphism of these rocks to schist, and perhaps simultaneously cause the formation of open fissures; and these, offering a free passage to mineralizing solutions, would give rise to the quartz lodes that form the auriferous deposits of the country. It is reasonable to suppose that a portion of the granite would also be involved in the zone of movement; and indeed we find evidence of this in the fact that gneiss or foliated granite is generally found on the margin of a schist belt or within the belt itself.

Transitions from an unaltered igneous rock to a highly foliated unctuous schist are clearly discernible in many parts of the gold belt. The minute structural and mineralogical changes involved in the transition can be best studied with the aid of a microscope. Starting, say, with a dolerite or diabase, the gradation of change will be roughly as follows:—Dolerite being a rock composed of plagioclase felspar and augite, the first step is the conversion of the augite to hornblende. This is one of the most common changes in the whole range of petrology. Augite and hornblende are practically identical in chemical composition, but have a different crystalline structure. Hornblende is, however, more stable than augite at ordinary temperatures; consequently the first results of molecular rearrangement in rocks containing augite is the metamorphism of that mineral to hornblende. The rock produced by this joint change consists therefore of plagioclase felspar and secondary hornblende, and is known as an epidiorite.

The next change is a breaking down of the felspar, producing a granular aggregate of quartz and reconstructed felspar, and a rolling out of the hornblende into ribbons or folds. This process, known as foliation, produces a hornblende schist. The metamorphism progressing, the hornblende becomes replaced by chlorite,

¹ See W. Gibson, *Quart. Journ. Geol. Soc.*, vol. xlviii, p. 404; also A. R. Sawyer, *ibid.* vol. l, p. 144.

and the rock is sheared into the highly foliated and unctuous slaty rock known as chlorite schist.

A similar process of metamorphism acting in acid igneous rocks, gives rise to sericitic (mica) schist, but these are of much rarer occurrence than the basic schists in the gold belts of Mashonaland. It is in the regions of most intense metamorphism that the veins occur. In the great majority of cases, therefore, the country rock of the lode is chlorite schist. In a few cases the veins occur in gneiss, but we are not aware of any instance in Mashonaland or Matabeleland of a lode having been found in the granite.

We are now in a better position to answer the questions previously stated.

1. The relation of the schists to the granite is probably one of original intrusion in the form of basic igneous rock, and not of deposition of sedimentary beds on the top of a granite floor.

2 and 3. The auriferous veins are chiefly found in the schist belts or their immediate neighbourhood, because they owe their origin to a sequence of dynamic phenomena intimately connected with those that gave rise to the schists themselves.

A corollary of great importance for the future of the Mashonaland gold-fields can be deduced from the foregoing, namely: That the schist belts are continuous in depth, and are not liable to be cut off by the granite, as has been maintained on the assumption that they were sedimentary deposits resting on a granite floor.

GOLD-BEARING DISTRICTS.

There is a rude parallelism in the direction of the schist belts, their trend being roughly east and west across Matabeleland and the southern portion of Mashonaland; and it is an interesting fact that similar schist belts (also auriferous), occurring in Zoutspanberg, have the same general trend. Travelling up from Tuli to Buluwayo, three belts of schist are traversed. The first is encountered some 45 miles north of Tuli; it is a small strip of metamorphic rock three to five miles wide. The next is the newly-discovered Gwanda belt lying 60 to 70 miles south of Buluwayo. This is a fairly broad belt, being 8 to 10 miles in width, while westward it trends towards the Tati gold-fields, and eastward it probably connects with the belt known as the Naka pass. Schists also occur for some 20 miles south of Buluwayo, and it appears probable that belts trending to the coast connect with the Victoria gold-fields. Travelling eastwards from Buluwayo several regions of metamorphic rocks are passed, the most important being those of Bembise, Shangani, Seleukwe, Gwailo, etc. The principal districts visited by us are the Mazoe, the Umfuli, Victoria, Umtali, Mogundi, and the Seleukwe.

The camp of the Mining Commissioner of the Mazoe district is about 27 miles north of Salisbury. The limits of the metamorphic area round the upper Mazoe are in no direction well defined. Southwards the geological features of the country are to a great extent obscured by a heavy surface wash, but it seems very probable that between the Mazoe and Salisbury there is a continuous schist

and slate formation, and that the Mazoe and Salisbury districts are practically one. Eastwards of the Commissioner's camp there are at least five or six miles of schists and greenstones, while westward the schists extend for about ten to twelve miles without interruption. To the north-east along the Mazoe river for about 30 or 40 miles a number of claims were marked out in the early part of 1891. Most of these, however, have since been abandoned, and little further prospecting has been done in that direction. The whole Mazoe district from a few miles north of Mount Hampden, which is twelve miles from Salisbury, is broken and hilly, varied by stretches of flat pasture land and swamps along the river sides. The direction of the hill ranges is, roughly speaking, north-east and south-west, but the numerous spurs and frequent branching off of one range into another make any detailed description of the contour of the country as impossible as it would be uninteresting. Many of the veins in the Mazoe district traverse igneous rocks. The Vesuvius Reef is a dark bluish quartz, separated by from one to two feet of clay selvage from the country rock, which may be called felspar porphyrite. The Alice Reef occurs in a coarse basic crystalline rock, the immediate wall of the vein being altered so as to present a schistose structure. Other veins occur in chloritic and other schists, and appear in the majority of cases to follow the foliations of the country rock.

In this connection we would remark, as it may give rise to some discussion on the vexed question of classification, that we do not consider that the fact of a vein following the general direction of foliation of the country rock, militates against the existence of a true fissure, or argues any lack of permanency of the vein in depth.

What is known as the Umfuli district comprises a number of smaller tracts in the neighbourhood of the Umfuli River in Mashonaland. The intervening country may yet in parts be proved to be auriferous.

The Hartley district extends about 11 miles from the Umfuli along a flat stretch of country, uninterrupted save by the two or three granite kopjes known as the Hartley Hills. The eastern portion of the district, including several of the best known reefs, is granitic and gneissose. Westwards on both sides of the Umfuli, gneiss gives place to schists and clay slate.

Concession Hill, where developing operations are now being carried on, lies 16 miles west-south-west of Hartley. The central ridge of this and the adjoining Duchess Hill is a body of chert and jasper, 40 to 50 feet thick on Duchess Hill, and reaching 100 feet or more on Concession Hill. Parallel bands of the same rocks are found along the flanks of the hills, alternating with chloritic schists and slates. The formation dips south-west at an angle of more than 70 degrees. In the Duchess Hill, where a shaft has been sunk 100 feet and cross-cuts driven, gold is found to occur in the chert bands chiefly in the form of thin scales or flakes; and similarly in Concession Hill, though here the gold is associated more with

quartz and highly ferruginous veinstuff. Much of the gold in the Concession Hill deposit is visible to the naked eye, occurring in a kind of arborescent crystalline form resembling a pattern of seaweed. On the south-west side of the hill there is an old stope from 2 to 5 feet wide and reaching a depth of 50 feet in hard rock. In this stope an iron pick was found in such good preservation that it hardly seems likely that the working is of very ancient date, and the same may be said in other cases in which timbers showing but little decay have been found at depths of 30 to 40 feet, or where waste dumps occur neither overgrown nor to any extent mixed with soil.

Speaking generally of old workings in Rhodesia, the general impression of those who have studied them is that they can be assigned to no one period; some say there were three distinct periods, but there seems to be little evidence for so precise a conclusion. We saw no old shafts near the workings on Concession Hill. It seems probable to us that in many cases the old miners did not hoist mineral, but carried it up inclined foot-roads, along the strike of the veins, as is done in Mexico and other less advanced mining countries to this day.

The town of Victoria is on the Pioneer Road from Tuli to Salisbury and about 180 miles south of the capital. The new township is rather more than a mile outside the actual gold belt, being in the granite country lying to the north. The average width of the schist formation may be taken roughly as between 10 and 11 miles. The greatest breadth is from Victoria towards Fern Spruit and the Tokwe River, where it reaches a breadth of 20 miles. The belt extends probably, as already stated, as far as Buluwayo in Matabeleland. It has certainly been traced from the western boundary of Mashonaland some 70 miles eastwards beyond the Umbelique River, and there seems little doubt that it continues to the Sabi River, if not further. The main body consists of chlorite and hornblende schists, together with diabasic and hornblendic igneous rocks. Talcose schist and steatite also occur, and towards the Tokwe River strongly foliated gneisses are found. The general dip of the foliation is southerly, the strike being east and west. Mr. Wybergh has favoured us with the following section across the belt from Victoria to Zimbabwi, a distance of 15 miles. First, a small band of chlorite and talc schists with beds of steatite is crossed. Then follows a small bed of ironstone and quartzite, succeeded by three miles of decomposed schists. Beyond this the formation is described as sandy, massive beds of sandstone occurring with seams of conglomerate (at Willoughby's Camp). The district generally is hilly, in parts mountainous, and is on the whole well covered with bush and well watered.

Umtali lies south-east of Salisbury, from which it is distant about 140 miles by road. From Chimòio, the present railway terminus, it is distant 55 miles, and from Beira 200 miles. The schists of the auriferous belt have been traced from Mozambique westwards to beyond the Odzi River, say 35 miles west of Umtali. The width

of the belt varies from one to two miles at the western end, to ten in the eastern portion. The chief interest in the district centres in the Penhalonga Range, a sharp ridge commencing a few miles east of Umtali, and extending six or seven miles towards Masse-Kesse. The backbone of the ridge is a bed of hard banded quartz rock and ironstone, the formation of the range gradually consisting of various metamorphic schists; in places soft talcose steatitic and chloritic varieties prevail, while in other parts a harder quartz-felspathic type occurs. Just west of the highest point of the ridge (the Crow's Nest) the formation is broken through by a belt of igneous rock (diabase or dolerite) which forms a cross spur constituting the divide or watershed between the Revue and Umtali Rivers, on the north side of the ridge, and giving rise to the Zambesi on the south side. The principal reefs of the district are the Rezendi and Penhalonga, the latter famous on account of the deposits of chromate of lead in brilliant red crystals, which characterize the best portions of the reef. The Umtali district is among the healthiest as well as one of the most beautiful parts of Mashonaland.

One of the properties of the Victoria District Gold Mining Company is situated on Victoria Creek, about twelve miles south of Victoria. The vein strikes N.N.E. and S.S.W., dipping at 35 degrees to 45 degrees to the W.N.W., which is opposed to the dip of the schist foliation, which is about 50 degrees east. The walls of the vein are formed by chlorite schist, a rock of wide occurrence in the district. The vein sheet is of irregular or lenticular character, varying considerably in width in different places. The mineralized portion of the vein consists of a band of dark-coloured quartz, brown in the oxidized and hydrated portions, but elsewhere grey. The colour is due to the presence of iron in various combinations, hematite and limonite being the minerals of greatest influence in the colouration of the quartz. Besides these minerals there are also present iron-pyrites, copper-pyrites, malachite, azurite, and gold. The pay band varies from four to five feet down to a few inches. It is easily distinguished from the unpayable quartz by the difference in colour, the latter being white. The mine has been opened by a main incline shaft down 130 feet, from which drifts have been carried on the 55 and 115 feet levels; drifting on the first level amounts to 400 feet, and on the second to 106 feet.

The Cambrian Reef is situated in the eastern portion of the Victoria gold belt, about 50 miles from Victoria, and close to the Shashi River. The reef consists of a quartz vein in gneiss formation, which towards the Shashi changes to hornblende schist and basic igneous rocks. The strike of the vein is parallel to the foliation of the gneiss, viz. S.E. and N.W. It dips at a high angle to the N.E. The outcrop is bold, forming a rocky kopje apparently indicating a reef of considerable breadth. There is little doubt, however, that the apparent size of the outcrop is increased by the reef having fallen over, away from the dip side, as erosion of the country rock proceeded. The vein-filling material is mainly white

quartz, but there are also seams of dark grey and brown quartz. The coloured quartz owes its colour to the presence of iron minerals and indicates a greater amount of mineralization than the white portions. The gold occurs mainly in patches, chambers, pockets, and crevices in the reef, and many good specimens of "visible" metal can easily be obtained by a little search.

The Dunraven property in the Seleukwe district contains a number of quartz lodes, some of which are roughly parallel, others intersecting to form a network of veins. The workings are approached by an adit run in from the side of the hill; above, on the hill side, are some extensive old workings. Several reefs of considerable dimensions have been discovered in the adit, and these are now being driven on. The gold is free and is associated with the usual iron and copper minerals.

The Inez Reef in the Mombi district is one of the best known in the country. It is traceable at or near the surface for a distance of a mile or two, striking N.W. and S.E., and dipping S.W. The best part of the reef is a shoot, extending 100 feet along the strike, and to the greatest depth yet attained, viz. about 90 feet. The average width of reef here is $6\frac{1}{2}$ feet, with a grade of probably nearly $1\frac{1}{2}$ ozs. per ton (by fire assay). A crushing of 40 tons from the best part of the reef yielded 68 ozs. on the plates—34 dwts. per ton. The quartz is compact with for the most part little mineral, the gold being fine and apparently evenly disseminated. Near the hanging wall, however, there is sometimes a vein from $2\frac{1}{2}$ to 14 feet in thickness, heavily charged with antimonite, and antimony ochre; the sulphide is massive and almost pure. The hanging wall of the reef is chloritic schist. The footwall is metamorphic, but of more obscure character; the rock is often granular in texture and contains secondary calcite.

The Camperdown property is in the Seleukwe district, Matabeleland. The particular hill on which the property is situated is composed chiefly of banded chert and ironstone, similar to Concession and Duchess Hills. Interbanded with the country are veins or seams containing sugary quartz and iron oxides, which carry gold, and have been worked by the ancients through numerous pits and burrows on the rabbit-warren method. It is probable that a number of different seams have been worked at shallow depths, the workings extending promiscuously along and down the hill side. Another class of deposit on the Camperdown is the fissure vein, with very high dip. In one part of the hill it would appear as if both kinds of deposits had been worked together. A long vertical stope can be seen with traces of quartz on the walls, which at one point is enlarged into a shaft about 15 to 20 feet deep to tap one of the flat-lying interbanded deposits.

Near the Camperdown, as in fact in all the gold districts of the country, are to be seen the stones used by the ancients for grinding quartz. They are generally blocks of the harder varieties of rocks, from 20 to 100 lbs. in weight, with shallow depressions worn into the upper face. Sometimes near a river, mortars can be seen, hollowed out of the solid rock.

Since the recent re-discovery of the Ayrshire Reef, it has been prospected by four or five shafts at irregular intervals along the strike. The first shaft was put down through an old working and into solid rock to a depth of 45 feet from the present surface, or to a total depth of about 60 feet below the normal surface of the country. This shaft has now fallen in, but a new one has been sunk alongside of it to a depth of 55 feet. The second shaft was sunk in a vein of felspar which eventually dipped out southwards, but was intersected by a cross-cut at 55. On each side of the felspar vein is diorite very rich in gold; it assays from 2 to 20 ozs. and even in parts 160 ozs. to the ton. This remarkable, if not unique, occurrence of gold was made the subject of a communication to the Geological Society by Mr. Alford last year.¹ He had sections cut, and states that the reef was in a quartz-diorite. In another shaft, 1000 feet from the first, the diorite is again exposed, but prospecting had not been carried far enough when we visited the property to prove the extent of the deposit. A general sample taken across the bottom of the shaft assayed 11 dwts. Since then a cross-cut has been driven to the felspar vein which outcrops in the old working in which the shaft was sunk, and the report is that the diorite has here again proved extremely rich. The reef seems to be a dyke of diorite traversing the granite or gneiss, which is the predominating country rock, in an easterly and westerly direction. The width of the diorite is nowhere proved, nor even the extent to which it is auriferous. It would appear that the gold, more or less, hugs the felspar vein, occurring on either side of it. The felspar vein is found throughout the length of the workings: apparently one persistent vein which would in this case be a valuable index to the best part of the deposit. The felspar contains only traces of gold.

ALLUVIAL DEPOSITS.

With regard to alluvial deposits we are permitted to quote from Mr. Hammond's Report to the Chartered Co. that "As far as my examination extends I could see no evidence of alluvial or placer deposits; in fact the topographical character of the country visited by me is such as to almost preclude the possibility of the occurrence of alluvial deposits of any extent or importance. This statement refers to those portions of Mashonaland and Matabeleland which I examined. In Manicaland the topographical conditions are different, favouring the occurrence of auriferous alluvial deposits of limited extent. I saw some of those deposits which had been worked by the ancients. The probability is that such deposits as have occurred have been, for the greater part, already worked out."

CONCLUSIONS.

Prospecting in Rhodesia is made easy for the present generation, for, with the rather remarkable exception of the Victoria district, practically all the known mineral areas of the country show evidence

¹ Quart. Journ. Geol. Soc. vol. l, p. 8 (Proc.).

of having been the field of former mining operations. Probably 90 per cent. of the reefs known at the present day have been previously exploited at one time or another; that the Victoria gold belt should be an exception is remarkable, lying as it does in close proximity to the best known and most extensive ruins in the country. The fact seems, in the absence of explanation, rather to go against the generally accepted theories with regard to Zimbabwe and gold-mining; or, as has been suggested, with, to our mind, small ground, it may be that old workings exist in the district, that are now filled up and have been concealed by natural agencies.

The general method of prospecting in a new district is to get hold of the natives in the neighbourhood, and by practical persuasive arts, in which beads and salt play an important part, to make them act as guides to the holes and depressions that mark the position of old workings. Sometimes an outcrop has been left, but more often the old workings are the only indication remaining. Having pegged off a line of old holes and as much of the extension as he feels inclined to incorporate with it, the intelligent prospector proceeds by panning from the old dumps and loose quartz lying about, and, by a critical examination into the relative sizes and depths of the overgrown holes, to select a site for his shaft. The object naturally is to strike the reef where, from the evidence at hand, it is likely to present a good section, and in this the prospector is so often successful that if such first strikes could be taken as a gauge of the average grade of the reefs, there could be no doubt whatever of immense future prosperity to the mining industry of Rhodesia.

While the majority of reefs pegged in the country will probably never yield one sovereign for two that are sunk in them, it would be extraordinary indeed, considering the great number of reefs proved to exist, if there were not some prizes in the lottery. They may be few and big, or few and mediocre, or they may be many, but to condemn or extol the country, as a whole, in its present stage of development, would be in our minds rash and prejudiced. Given a proper discrimination in the selection of properties, and the exercise of judgment in the expenditure of capital, the country certainly commends itself to the attention of capitalists.

The immediate future of mining in Rhodesia, and in fact the immediate future of Rhodesia itself, depend almost entirely on the success of gold-mining. Silver is of comparatively small importance. We say the immediate future, for, whatever the mineral prospects of Southern Zambesia may be, we have small doubt that in the course of a few decades, possibly half a century, the country will, with its healthy and fertile uplands, support a considerable population on its pastoral and agricultural merits alone.