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Part I NEW RIETKUIL MINES LTD.;
Part II SKILLED AND UNSKILLED LABOUR OF SOUTH
AND CENTRAL AFRICA AS MINE LABOURERS.

A Thesis

Submitted to the Faculty of the College of Engineering
in candidacy for the degree
of Engineer of Mines

BY

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Klerksdorp, Transvaal, Union of South Africa

1898

Approved by Graduate Com.
Sept 14" 1931

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Approved by the Engineering Faculty
Sept 8th 1931

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Part I NEW RIETKUIL MINES LTD.KLERKSDORP DISTRICT, TRANSVAAL, UNION OF SOUTH AFRICA

The gold bearing reefs in this district of the Transvaal were first discovered during the late eighties and considerable surface prospecting carried out.

During the early nineties the Rietkuil Gold Mines Ltd, with a nominal capital of £120,000 commenced development work.

In 1895 Thomas H. Leggett, Consulting Engineer for S. Neumann & Company, reported on the property.

His conclusions in part:- "One cannot consider a fact, reef assaying 9 pennyweights over 30 inches to be, under existing conditions, a very promising mining proposition; especially where this value exists only in places and barely good enough to pay working expenses. However, the mine is looking better than it did six months ago in as much as it contains now 10,000 tons of ore that would about pay working expenses. The southern portion of the ground is developing much better than the northern and we are getting assays as high as 13 and 14 dwt. over 30 inches of width".

"The property should be closed down in the hope that in the near future working expenses may be sufficiently reduced to enable operations to be resumed here, with a better chance of profit".

The Hameson Raid during 1895 actually brought operations to a stand still and the mine remained dormant save for paying claim licences, until 1910 when S. Neumann & Co., again commenced development work, and contemplated erecting a Reduction Plant and start milling operations. Their plans and specifications were out for the plant, and at that time S. Neumann died and his heirs decided to dispose of their outside holdings etc., and the plant was not erected.

During 1922 E. E. Hardach, U of N, E. M. and myself (F. M. Linscott) purchased the property, and commenced the erection of a small reduction plant.

During the cold and winny weather of June in these parts poor Hardach contracted a cold and due to being a Phthisis sufferer succumbed to the dread disease. I carried on with the erection of the plant as far as finances would permit and commenced crushing in April 1923, without a cyanide plant.

At the time Hardach and I took over the property the mine was virgin, no stoping having been done, and the ore reserves stood at 75,000 tons fully developed, valued at 7.1 dwt over a stoping width of 40", about 45,000 tons partially developed of 7 dwt. value and a large tonnage fully and partially

developed ore ranging from $4\frac{1}{2}$ dwt. to 6 dwt.

The mine is an outcrop proposition with one main shaft and seven small shafts, the deepest of which is 626 feet from the surface.

The reef strikes about 8 degrees west of north and dips to the west at an angle of about 20 degrees.

MINING:- The reefs mined by me on this property are in a syncline or basin about one mile wide on surface by 4 miles in length. On the east side of the basin the side being worked by me, the reef dips at about 20 degrees while on the west side of the basin the dip is about 35 degrees.

The Afrikander Mine adjoining the Rietkuil on the south is mining the same reefs; at the extreme north end of the basin the West Bonanza Mine worked both rims of the basin.

The reefs are similar if not the same as the reefs on the Witwatersrand. The formation, walls, pebbles, matrix, gold and silver content are identically the same.

There are three reefs in this series carrying gold in paying quantities, unfortunately the reefs are too far apart to carry any two in one and the same stope, although we mine the three reefs from one drive usually carried on the bottom reef and cross-cut raises to the two upper reefs.

I carried on no development work, save a few winzes. Stopping is carried on with 5 jack-hammer shifts, and a crew of hammer boys (single-jacks).

I employ two white miners and an average of fifty-five natives underground. The surface plant is run with forty-five natives.

The jack-hammers drill an average of 20 to 25 -36 inch holes per shift in the pyritic ore, and 35 to 40 holes of similar depth in the oxidized ore.

Hammer boys hand drilling average 36 inches per shift in pyritic ore and two 36 inch holes per shift in the oxidized ore.

Generally speaking the hammer boys in this district are a poor type of native, although, a few very exceptional natives drill 4 -36 inch holes in the oxidized ground and 2-36 inch holes in the pyritic ore.

Both jack-hammer and hammer boys are paid on an inch basis, piece work.

I use 20 per cent nitro-glycerine dynamite as well as 40 per cent in the oxidized stopes, and use all 40 per cent in the pyritic stopes.

The shoveling is quite an item in a comparative flat stope (20°). The hammer boys in addition to drilling holes, clean down their stope faces upon coming on shift, and if necessary, according to their contract, may put in two hours for this work.

The natives tramping fill the trucks (coco-pans) with the broken ore and tram to the central shaft, and dump the ore into a loading box and from there the ore is hoisted to the surface by means of an incline skip on a 20 degree incline track.

The stope faces are periodically sampled, usually monthly, especially when the faces are nearing the non-pay zone or rim of the pay chutes.

I have left pillars in the stopes to protect the workers, keep the hanging wall up, and the stopes open.

This being an outcrop property, well ventilated and practically free from silicosis it is consequently a non-phthisical mine.

The main plant at the beginning consisted of two 125 Horse Power Stirling Boilers, 1-180 H. P. Corless Valve Engine driving the mill, 1 75 H.P. Tange Engine driving two rock-crushers, 2 jaw crushers capable of crushing one hundred tons of ore per day to a 5/4" size, 1-double drum steam hoist with 2-1 ton skips, an elevator from crushers to mill bin, one four feet ten inch diameter by twenty feet in length tube mill fitted with Osburn liners, three tables for blankets (corduroy), 1 small concentrating table for re-concentrating the blanket product, 1 amalgam barrel, 1-3" Morris sands pump delivering mill pulp to the "veld" where sands and slimes were empounded and eventually treated.

The ore went direct from the crushers to the tube mill, the waste was eliminated from the mill ore on sorting belt also grinding pebbles of ore were picked off the sorting belt (pieces of hard ore from 4" to 5" in diameter used for grinding load).

This size tube mill crushes this ore, to a satisfactory fineness about 100 tons in twenty four hours. The ore is crushed in the tube mill with an Alkaline solution. The pulp from the tube mill passes over three tables four feet six inches wide by twelve feet in length which are covered with blankets (corduroy), these blankets are washed about every four hours according to the per cent of pyrites in the ore, to free them of the collected concentrates. The concentrates are re-concentrated, then barrelled in the ordinary way with Mercury.

From the blanket tables the mill pulp is pumped to a dewatering and classifying cone and the heavy and large particles

of ore are returned through the bottom of the cone to the tube mill for further grinding. The cone has a periphery discharge and the sand and slime overflow the cone to the sand collectors and there the slime separates from the sand by overflowing the sand collectors gates.

This method of collecting sand and separating the slime has been the practice on these fields for many years, but today some districts of the Witwatersrand find it more economical to "all slime" the ore. Many of the plants are now adapting a secondary grinding after classification, using another tube mill, which practice has increased the efficiency of tube mills employed, lessens the cost per ton milled, and lowered the residue value.

In this district it costs us about one shilling (1/-) per ton milled for licenses including claim licenses and other taxes but excluding profit tax.

My experience at Rietkuil is that about 50 per cent of the total gold extracted is done by concentration and amalgamation.

The residues from concentrating table and amalgam barrel were permitted to enter the current mill pulp therefore, any particles of weight or size would naturally return to the tube mill for further grinding.

THE GRADINGS AND VALUE OF THE OXIDIZED ORE.

Samples taken from the mill pulp after passing over blanket tables, are as follows:-

+ 90			-90 and +200			-200		
% Total Wt.	Assay Value dwts.	% Total Gold.	% Total Wt.	Assay Value dwts.	% Total Gold	% Total Wt.	Assay Value dwts.	% Total Gold
18.44	1.80	9.33	27.07	2.29	17.43	54.49	4.78	73.24

Heads to mill in this case was 5.72 dwt.

2.17 dwt. was recovered by concentration and amalgamation.

60% of the pulp was treated as sand assaying 2.52 dwt. and leaving a residue value of .48 dwt.

40% was treated as slime with an assay value of 5.1 dwt. and .33 pennyweights residues.

The gradings and values of the pulp from the pyritic ore after blanketing are as follows:-

+90			-90 + 200			-200		
% Total Wt.	Assay Value dwts.	% Total Gold	% Total Wt.	Assay Value dwts.	% Total Gold	% Total Gold	Assay Value dwts.	% Total Gold
21%	3.8	25%	32%	3.1	31%	47%	3.0	44%

Heads to mill of the pyritic ore was 7 dwt. leaving in pulp after concentrating 3.216 dwt. 36% of the pulp was treated as slimes with a value of 2.8 dwt. leaving a residue of 0.2 dwt. and 64% of the pulp treated as sand with an assay value of 3.45 dwt. leaving residue value of 0.52 dwt.

The explanation of the high values in the - 200 product of the oxidized zone of this mine is peculiar to the ore of this basin. A high per cent of very fine gold in the ore, with a coating formed on each particle of gold contained in the oxidized zone during the process of oxidation, naturally gives the product treated as slimes a high value. The gradings of this ore give a high per cent of the total gold in the minus two hundred product. And in practice with the gravity separation of the slimes from the sand in the oxidized ore the slimes usually give a higher value than the original mill pulp, each particle thereby increasing its bulk and naturally lessening its specific gravity.

The gold from the oxidized ore amalgamates with difficulty, and concentration by the blanket method is inefficient, only the heavier particles being caught on the blankets although all the gold is amenable to the cyanide treatment. The pyritic ores concentrate and amalgamate readily.

Sands Treatment:- After the sand is collected from mill pulp it is transferred through a bottom discharge door from the collector into a car which is trammed and dumped into the sand leaching tanks. The tanks are filled within six inches of the top of the tank and a cyanide solution of .05% potassium cyanide is pumped on same. The drain pipe to the leaching tank is closed and the sand and solution remain "in contact" for a period of six hours. This period of six hours contact has been proved in these fields to give the necessary and most economical results. After the expiration of six hours, the drain is opened and the gold bearing solution allowed to drain from the sands tank into the extractor box which is filled with zinc shavings. After the solution has practically drained from the sands tank a weaker solution of about .025% KCy. is pumped on and permitted to drain off, usually a total of five washes (weak solution) to each tank, in other words about two and a half tons of solution per ton of sand is used in the dissolving, leaching and washing process. The sand residue is discharged through a bottom discharge door.

I have experienced no difficulty in the cyanide treatment. The consumption of cyanide is about one third of a pound per ton of sand treated.

All the lime required to keep the solution alkaline is fed in to the tube mill, usually about .01% CaO. in the mill discharge water content.

The sand residues average .43 dwt. per ton of two thousand pounds which figure may be reduced by selective grinding of mill pulp after re-classification.

The slime is collected in Dorr Thickener from overflow from sand collector and is treated in Dorr Agitators after being pumped from the Dorr Thickener. The Specific Gravity of the Agitator pulp is about 1.48 when it passes to the Oliver Filter for filtration.

The pulp on the filter is first washed with a potassium cyanide solution of .02% strength and later washed with barren potassium cyanide solution containing about .005% KCy. I find there is a small amount of gold dissolved on the filter. The slime residues average about one quarter of a dwt. and about 70% of this quarter dwt. is in the state of undissolved gold.

The working conditions for a gold mine in this particular district are not of the best, due to the proximity of the alluvial diamond diggings. The recruiting fees for a six months contract native run between £3 and £6 (Sterling) each, including advances in cash, before he performs a shifts work. He soon learns of the diggings being near and the high pay the excited diggers promise him and he clears off without leave. If the digger has a good wash at the end of the month the native may receive his pay, otherwise, during the meantime, he more than likely has annexed a good diamond or two which he can dispose of for a small sum to the local store keeper who usually stoops to buying illicitly. The native hangs on for another month with this "diamond boss", and at the end of the second month if the pay is nil, likely the ground is without diamonds or the native labourers have cleaned up before hand. The native best knows whether it is time to move on to the next claim and boss. The natives flock to the diggings and remain there as long as they can make a living without much work. The diggers have very little control over their native labourers, they work when they wish. For example come to work at 8 a.m. take two hours for lunch and quit at 4:30 p.m., consequently the gold mines with the regular hours and able to measure up each natives task at the end of the shift, are not very popular especially as long as he (the native) can manage an existence on the diamond fields.

For economical working under South African conditions a plant should be either of 700 tons capacity or not less than 4,000 tons capacity per month. The smaller plant, one man should be able to personally supervise all the operations and for the larger plant one should have either two or three department heads for the supervision of same.

The Rietkuil has an adequate water supply and the water is ideal for both domestic and reduction plant purposes. The water is pumped from a deep well $1\frac{1}{2}$ miles from the mine through a six inch delivery column.

The mine itself makes but very little water, therefore, the underground pumping expenses are light.

The mine being an outcrop property the hoisting expenses are naturally low.

Some sorting is done underground and about 2% of waste is sorted on the surface. The reef leaders are usually separated by partings from the waste, therefore, a small per cent of waste is broken. Ingersoll-Rand and Sullivan Jackhammers using Swedish steel, and the steel is sharpened on a Sullivan sharpener. 7/8 inch hollow hexagon steel is used which is sharpened chiefly by natives. Their sharpening work is not of the best as they burn some of the steel and their tempering is uneven until they have had a long and thorough training.

Stores used and consumed:-

Coal (nuts) calorific value of 13.75.

Coal used per ton of ore milled, including steam hoists and pumps also coal used for domestic purposes and steam heated cyanide solution and slimes pulp equals about 1/8 of a ton and costs 2/4 (two shillings and fourpence) per ton milled. The coal costs 18/1 per ton of 2,000 pounds landed in the mine bunkers.

Dynamite and other explosives, fuse and detonators, etc., cost one shilling and threepence per ton of ore milled. Lime two tons per month and it costs 50/- (Sixty shillings) per ton. Cyanide at £10/10/0 per case of 220 lbs. Lime shavings at 7d. per pound.

All spares for tube mills such as liners, scoops, screens, snouts, etc., also sands and slimes pumps and their spares, picks, shovels piping, crusher spares, belting, candles, steel, manilla and steel ropes, greases, packing, rock drill spares, all castings, many chemicals, iron, etc., are manufactured in South Africa.

The chief articles imported are oils cyanide of potassium, fuse, mercury, zinc, blanketing, borax and steel.

Natives were originally recruited at their kraals by private agencies also by individual mines as well as by the Rand mining groups and the expense per head including capitulation fee, travelling expenses, and food was approximately £5 for a six months (one hundred and eighty shifts) contract.

The competition and rivalry between the recruiters (agents) in the field became so keen that the natives were misled in the form of promises as to the condition of work and pay which in turn caused so much dissatisfaction on the mines, causing the mine management endless trouble.

Eventually the Mine Managers Association asked for an inquiry into the matter of recruiting native labour, as the cost

per head had risen to a prohibitive figure and the outcome of the inquiry and the investigation was the forming of the present Native Recruiting Corporation, Ltd., an organization controlled and managed by the Chamber of Mines.

This Organization has worked and is working smoothly and in return has restored confidence in the natives minds regarding conditions and pay, has considerably cheapened the recruiting fees and the actual cost of the unskilled labour for the industry. This organization has also been able to turn out for work the maximum available labour in the country which is unquestionably due to its straight forwardness with the native while at the same time assisting his family at the kraal during his absence. The housing of the native labourers is done in compounds (barracks) and with one general kitchen. The food ration is adequate, and much more than he ever had in his native home.

GOVERNMENT RATION SCALE FOR NATIVES EMPLOYED.

ON THE MINES

ARTICLE	MINIMUM ALLOWANCE.
1. Maize Meal, including that used for Marewa	24 oz. per day
2. Bread.....	6 oz. per day
3. Beans or peas, at least half of which to be germinated, or 0.2 oxs. per day of germinated beans or peas, plus 1 ox of whole meal maize, or samp or other approved cereal.	
4. MEAT.	
a Dressed and containing not more than 25% bone	3 lbs per week
b Soup meat (heads, heels, liver, etc.).....	3/4 lbs per week
c Or when the native labourer signifies his willingness for the alternative, three pounds per week of fresh fish or half the quantity of dried fish weighed before soaking (soaked for twelve hours).	
5. Peanuts.....	2 oxs per day, or additional 1/4 oz animal or vegeta- ble fat.
6. Coffee or Cocoa One sixth of an oz. per ration issued, together with a sufficient quantity of sugar to sweeten same.	
7. Fresh vegetables, excluding carrot tops and maize husks.....	5 oxs per day
8. Salt in a sufficient quantity.	
9. Only the following vegetables are to be issued. Potatoes, marrow, green maize, leeks, squash, carrots, cabbage, tomatoes, sweet-potatoes, onions, pumpkin.	

A weekly ration of Kaffir beer is issued each native usually on Sunday which is considered essential to keep him healthy.

The native before going to work in the morning has a large cup equal to two pints of sweetened coffee or cocoa and a small loaf of bread. He also takes his breakfast to work with him, consisting of about a gallon of mealie meal porridge (cooked corn meal), mixed up the previous night with a little water, flour or sugar or both and permitted to ferment. This concoction the native drinks during the morning. He may get this drink at the Compound Kitchen in the morning before going to work, but usually he mixes it up himself, prefers to be his own "Boot-legger". In these outcrop mines nearly all the natives go to the compound for a hot lunch and again at night they enjoy a good hot meal.

I have a native hospital that will accommodate about 20 natives, a native male hospital nurse who commands the rudiments of first aid work and a qualified doctor who visits the hospital once a week. The hospital is a fairly popular place for loafers and "Monday Morning Beer heads". Plenty castor oil convinces them of their regained health. Any very serious cases I send to the Government Hospital at a charge of three shillings and sixpence per day and my own mine doctor attends to them.

Native attendants for boilers, engines, air compressors, pumps hoists, etc., are quite satisfactory and most reliable.

I have been able to engage about 25% of my native labour requirements locally (colunteer labour) and as a rule this class of labour is very satisfactory as they remain on the job indefinitely; many of these local natives are married and live in huts of their own construction near the works. Their wives develop into "Kaffir Beer merchants" with their husbands as their best customers. Often on Monday morning these natives are stupid and it requires some "Boot-leather" to turn them out for work.

Clean up Mid-month and month-end is performed by the shiftsmen with possibly two extra native helpers. The well treated zinc and gold slimes are treated in a lead lined acid vat with commercial sulphuric acid, dried and calcined, mixed with flux and smelted. The bullion averages .850 fine gold and .070 fine silver and is marketed at the local banks. The Bullion is insured from the time it is converted into Bullion until the bank has realized on same, at the producers expense.

The bank charges are excessive. The banks are also similar to the government, live from the mining industry.

Returns and statistics required by the government to say nothing of the taxation make some of the low grade propositions prohibitive due to the large clerical staff required for compiling such data.

Gold is in increasing demand, and the people in South Africa including the Government are at last alive to the great importance of our gold mines and are now aware that conditions can and may be altered to reduce working costs to a figure which will afford considerable relief to low grade propositions.

This relief may be looked for in an alteration of Railway Rates, taxation, and mining regulations, and that it is now a possibility is evidenced by the appointment of the Low Grade Mines Commission. This Commission at the present time is investigating working costs, living costs, costs of material and stores, taxation direct and indirect and especially the mining Regulations which are the stumbling block to permit low working costs especially in prohibiting the employment of the native to the best of his ability.

The revolutionary suggestions made by the present Government Mining Engineer to this Commission indicate the immediate action of the present Government towards some relief for the Mining Industry.

Fred M. Linscott

Part II SKILLED AND UNSKILLED LABOUR OF SOUTH AFRICA

GENERAL ASPECTS OF MINING LABOURERS.

The South African as a Manual labourer - hopeless.

The South African born white man has been spoiled by having the Kaffir to perform all manual labour. He regards the Kaffir as beneath him and he simply will not take to it. He looks upon a foreigner who performs hard work in this country as being unbalanced. I do not know what he is right.

He, the white South African, can live or rather exist on practically the same food the Kaffir consumes, namely meal-meal and porridge (corn meal mash).

The country is a vast stretch of gold very sparsely populated and before the discovery and opening of the Kimberley district and Witwatersrand gold mines, was practically without schools and transportation facilities, and in consequence the people have little knowledge of a better existence. In the present school systems a large majority are chiefly acquiring knowledge in the Dutch language and as it is foreign to all other races of the world and no literature of any description written in Dutch naturally they are living within their own circle.

Many of them who have attended the schools do not seem to appreciate the fact that progress and advancement come from hard work even at home, manual labour. They seem to develop into idlers - unproductive workers living on wages provided by families of those who can pay the taxation of enterprises.

It is a fact they have taken to mining and many other industries including railroads but their work is very inefficient.

The Witwatersrand Mining Industry boasts of improved working conditions, reduced working costs, etc., but it is chiefly due to technical progress in mechanical devices employed.

If the Witwatersrand Mines were not the richest mining propositions in the world the South African miners, working with Kaffir labour would not be able to keep the industry afloat.

Think of a supervisor who natives who can never send a message, push a truck along a drive in a mine or drilled a hole in hard rock, being put in charge of a gang of raw natives on their instructions and supervision. Generally speaking many of the immediate white superiors are treated their work and duties by the natives as a job of the natives remain in the service indefinitely.

A large percentage of the underground employees of the Witwatersrand Mines, if working in any other country, would at once be classed as unskilled labour.

The Witwatersrand Mining Industry today is deficient in thoroughly qualified miners, also in underground mine officials.

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The worlds records made in these fields for shaft sinking, driving and stoping were accomplished by a different type of miner than the average worker of these fields today.

The general concensus of opinion is that this country is at present short of reliable and competent journeymen, although there are many out of work belonging to the various trades. Many youngsters serve their apprenticeship but fall down after entering public competition.

The South African Voor-trekkers with a few exceptions are the limit. They exist on the veld, camping under a tree near a water hole or along a river bank, shoot wild game dry some of the meat. Occasionally purchase a bag of Boer meal (graham flour) and a little sugar and coffee, by selling some of the dried meat, game skins and a little ivory if they chance to have it.

I am of the opinion that the new Copperfields in the north should look elsewhere for their skilled labour and equip their mines with all modern mechanical devices to reduce the employment of both skilled and unskilled labour.

The natives of the southern hemisphere of Africa have lived a varied life. Before the advent of the white man and for some years after they carried on tribal warfare throughout the continent and as physique, endurance, and stamina is essential in the individuals participating in all wars, likewise in these wars; the better type perished, the weaklings not being able to reach the front survived leaving a nucleus for generations to follow.

Natives were pure and without vices in their natural primitive state when the missionaries first visited them. The teachings of the missionaries created new ideas in their brain which proved disastrous to many while civilization eventually improved their mode of living and many survive the ill effects of their early civilization.

Due to the tropical and subtropical climate of the continent their mode of living was and is of a neglected and meagre character, therefore, not possessing or developing energy and existing chiefly on the veld. Many of the tribes planted crops but due to wars, drought, and pests said crops could not be depended upon and in consequence they, the natives, took to the veld for roots, cereals, wild fruits and game. Even at the present time many tribes do not plant sufficient crops for the year's consumption, and they have to exist several months each year on a very limited diet, and during this sparse diet period, they become very weak and thin although like the animals soon fatten when the new crops come on.

In the wilds of South Africa today, early morning races for food during the dry season start from the large river banks. The race is between the natives and the baboons.

The natives live along the river banks to be near the permanent water supply, likewise the baboons. The baboons sleep in the high trees as a protection from carnivorous animals and often the natives resort to the trees for the same protection. Generally speaking the trees some distance from the rivers are not sufficiently high and their branches are on the small side for sleeping accommodation.

The sight of these natives during their lean period reminds me of an old professional U. S. A. soldier who served in the Modoc Indian wars. When his energy failed and his habits degenerated he took to civil life and worked during the harvest season only, and used to winter under a fig tree in the Sacramento Valley, California. He claimed that during the winter season he became so thin that he could wipe his nose on the skin of his belly. The sight of these naked natives during their thin period reminds me of "Jimie the stiff" as he called himself.

The average weight of the African native is about 150 pounds when grown, save those who take employment during their youth and develop due to regular meals, sufficient food and adequate housing.

The natives within the limits of civilization today engage as domestic servants, general unskilled occupations about towns, farms, cities, railway work, etc., are of much better physique than the natives employed on the mines. The mine life does not appeal to him due to various reasons such as compound life (Barracks), police supervision, very little recreation and entertainment.

He comes to this mine employment direct from his "kraal" under 6 to 12 months contract, figuring at the time he entered into the contract that his savings would be sufficient to purchase so many oxen and that would make him for life as he would exchange the oxen for a wife, therefore back to the primitive life for good.

At the kraal with a wife, life is ideal for him. The women in addition to brewing him quantities of Kaffir Beer plant and harvest the crops, grind cereals into meal on a stone, cook the meals, make another dish from meat, or greens if available, and place the prepared meal in front of the man who eats alone unless there are other male members of the family.

Therefore, the remainder of his life is spent in idleness save for occasionally trapping game and looking for wild honey. The search for honey is not a laborious job as it is accomplished with the aid of the evey annoying honey bird. The

bird that informs, when you are out shooting, all the game in the veld of your coming.

The native is a destructive person in picking wild fruits, he will cut a tree down rather than climb up the tree and pick the fruit. I presume he came by his habit naturally as the baboon will climb a fruit tree, walk out on a branch as far as he can without the branch breaking, then jump out of the tree but holding on to the branch and tug and tug at the branch until it breaks. If he finds his task accomplished he sets up a shrill squeeling noise one would imagine calling for help, but he is simply lamenting the fact that a larger baboon will reap the benefit of his efforts.

White settlers during the early occupation of South Africa encroached upon the lands occupied by the natives causing uprisings and wars embittered the natives; finally the younger generations of natives adapted themselves to the conditions and in such occupied territory the natives have taken on civilization to the extent of sending their children to school, semi-modern agriculture practices and the white man's diet, dress and living conditions as far as their means will permit.

The natives' association with the whites is not of the best as the latter do not care to see the natives advance so rapidly in education and living conditions. Many young natives are today fitting themselves as better citizens of the land than some of the whites of the country. This fact must be recognized sooner or later and the native given due compensation for his work and accomplishments, this especially applies to the (British South Africa) natives.

The farmer is in the grip of these natives today. The saying, "boy is a boy, 2 boys $\frac{1}{2}$ boy and 3 boys no boy at all" explains the inefficiency of the farm native. He is an expensive asset to the farmer. The farmer is to blame; he has brought this on himself by his slack methods and such farmers are well in the majority. A farmer attempting to keep up a standard task for the native and some efficiency of his work is boycotted and without labour and has to go out of business save what he can do himself. In other words the farm natives are living in luxury and indulging in a lazy and easy life while their employers output is limited to the natives wishes and will.

The majority of natives employed in the mines are usually recruited from back veld districts but after a few months contact with the more civilized native begin to want more in life than their wants were at their primitive homes. If the living conditions at the mines were improved and their pay adjusted according to their earning power, the better type of native with the increased pay would soon take on this so called civilization and spend his earnings for better dress, delicacies and shudder at the idea of returning to the kraal other than to take a mate and return to this so called advanced living, etc.

The Portuguese East African natives have made better labourers for the Mining Industry due to the fact they have been kept down as to freedom and subjected to the strictest discipline under the (Portuguese East Africa) Government control. In other words the P. E. A. boy suits the Mining Industry because he is satisfied with a schedule - pay, which is so much better than he can earn at home, therefore, he contents himself with the conditions on the mines while the (British South Africa) boy has sufficient advancement and civilization to demand something more for his ability and efficiency. The B. S. A. native compares his work, pay, and efficiency with his immediate white supervisors.

The B. S. A. natives before the Boer War did not do their share of the mine work on the Witwatersrand, the P.E.A. natives were employed in much larger numbers. Those of B.S.A. origin at this time began to realize that their pay, food and quarters were not equal to their work and the risk for underground service, therefore, at the close of the war they did not return to the mines in large numbers while the P.E.A. natives also due to their associations with the B.S.A. natives, in pre-war days, were reluctant of returning to the mines to say nothing of the number who succumbed to that dreaded disease Miners' Phthisis during the war period.

The Industry looked the world over for substitute labour and finally decided to import 100,000 indentured Chinese labourers on a 3 years contract.

These Chinese excelling in intellect, ambition and energy and having sufficient brain power to understand piece work soon taught the industry as well as the South African native that much more work could be performed by the local natives with better conditions such as food, housing and under a more intelligent class of supervisor.

The S.A. native today has become imbued with trade Unionism, Socialism and Bolshevism and performs as little work as possible. Many natives live in idleness and have some justification due to their modern ideas of a common wage, and not being paid on what they would accomplish if given a higher status.

The natives have been and are being exploited and since some of the recent strikes of white miners they are feeling their importance and influence upon the Mining Industry as well as secondary industries while the farming industry is sadly under their control.

The average mine native is not doing as much work as he did 20 years ago, the increase in tonnage crushed per native employed on the Witwatersrand Mines is due to the improvement in the appliances he works with.

The methods of instruction are practically nil for native beginners in the mines.

If the youths say at the age of 17 could be put through a course of instruction and training for a period of 12 months then given employment in a mine, at the age of 20 they would become very valuable labourers, their increased efficiency in consequence would lower working costs and in turn help solve the low grade ore problem and cause many more white supervisors to be employed.

Provide better living conditions for the native mine worker enabling him to keep his family near the mine and then you will have the youth on the spot at 17 years of age to take his father's place. They will automatically segregate themselves, those having the ambition and ability to earn the better wage will remain near the industry and the "wasters" will return to the kraals for good.

The raw African native is not only imitative but he has the ability to learn quickly, while young, and he at once becomes very reliable when placed in a position of responsibility.

In Central Africa the natives are lower in standard, of physique and energy, than the natives living in the more temperate zones further away from the equator to the south.

The new and promising Copper Fields of Northern Rhodesia will find the average native available in Central Africa to be a poor worker and the class of work usually falling under unskilled work will undoubtedly be superseded by mechanical devices as far as practical to eliminate manual labour. The so called cheap labour will be too expensive for the job.

The native youths of this section of the country if put into training for certain classes of work, properly housed and fed with medical supervision and discipline, increasing their physique and creating a want for commodities of civilization requiring more cash and thereby a habit of work may develop unpromising young Central African natives into real useful labourers.

I am writing of personal experience with the Rhodesian natives regarding their ability, indolence and lack of becoming efficient.

In place of compounds (barracks) I suggest establishing locations with a small plot of ground for each native say anything from a 100 sq. feet to 1000 sq. feet just that they may have something growing, schools for their children, recreation grounds, etc., would tend to keep them satisfied. They are human and their living wants will be many if their earning power is given a chance to develop.

The Southern Rhodesian Small workers in many cases run the entire mine and plant with native labour alone, only the owner of the concern or one European in charge. I operated the Emerald Mine in Southern Rhodesia for a period of 6 years with natives only and was able at the end of that period to dispose of the plant as first class second hand machinery, which speaks

for itself in their care of plant entrusted to them. The natives employed in responsible jobs were not Rhodesian natives, chiefly Nyasaland 'boys' who are not a bright tribe generally, when comparing them with some of the native tribes living farther to the south. Rhodesian conditions appeal to the Nyasaland boys and they remain on the job during a long period and become skilled at their various jobs.

Abnormal fluctuation of native labour supply is due chiefly to the fact that the natives will remain at home during the seasons when crops are good and food plentiful, as their requirements are practically nil at the kraal due to their primitive life.

Northern Rhodesian Mining Industry is faced with entirely primitive natives not under effective administrative control, and a stable complement will be difficult. The supply, obviously, is more trying and unpromising than that of the Witwatersrand.

Suggest mechanization for these northern mines and that they plan to use as small a native labour complement as possible until the younger generations develop. In the mean time the white man will necessarily have to make good and the "weeds" will automatically fall over.

The number of African natives who are completely divorced from their tribal life is increasing due to a desire to permanently live and work in urban areas, while the number is small on the whole it will rapidly increase if assured of a reasonable remunerative wage and comfortable living conditions. The wage question is not unresolvable; as a careful investigation as would be adopted in the case of any other class of worker would ensure a permanent labour supply from the natives of the land.

Prior to 1913 the Mining industry on the Witwatersrand maintained many separate recruiting organizations and competition and rivalry was so keen that Mine managers had endless trouble with the natives supplied to the mines, as the recruiting agents misrepresented conditions at the mines to the raw recruit, therefore, protests from the Mine managers finally caused the abandonment of all these separate organizations and the forming of the Native Recruiting Corp Ltd. which organization now handles all the B.S.A. natives recruited for the mines.

The present facilities for remitting a native's earnings to his home with the advance cash given him before leaving his Kraal for the mine contract and with the treatment received on the mines and fair remuneration for his work has made the labourer quite content and satisfied with the Bureau's activities.

The average earnings of the mine natives is about 2/- (two Shillings) and two pence per shift plus their living, free board, quarters and hospital treatment costing the industry about 1/6 per day. The medical attendance is excellent including treatment while on the mine also being sent home if unfit for

duty under supervision and care of hospital orderlies.

Following is the union Ration scale for Natives Employed on the Mine

GOVERNMENT RATION SCALE FOR NATIVES EMPLOYED ON THE MINES

ARTICLE	MINIMUM ALLOWANCE
1. Maize meal, including that used for marewu	24 oz. per day
2. bread	6 oz. per day
3. Beans or peas, at least half of which to be germinated. Or 2 oz. per day of germinated beans or peas plus 1 oz. of whole maize or samp or other approved cereal.	3 oz. per day
4. Meat:-	
(a) Dressed, and containing not more than 25% bone.	3 lb. per week
(b) Soup meat (Heads, heels, liver, etc.)	3/4 lb. per week
(c) Or where the native labourer signifies his willingness for the alternative, 3 lb. per week of fresh fish or half the quantity of dried fish (weighed before soaking) soaked for 12 hours.	
5. Peanuts	2 oz per day, or additional 1/4 oz. animal or vegetable fat
6. Coffee or cocoa, 1/6 of an oz. per ration issued, together with a sufficient quantity of suger to sweeten same.	
7. Fresh vegetables, exclusive of carrot tops and maize husks.	5 oz. per day
8. Salt in a sufficient quantity.	
9. Only the following vegetables are to be issued:- Potatoes, Green Maize, Squash, Cabbage, Sweet Potatoes, Marrow, Leeks, carrots, Tomatoes, Onions and pumpkin.	

So much for the African native as a labourer.

He has been the salvation of the low grade mines of the Witwatersrand and today is the only hope of the country.

Give him better conditions, better pay, and a better status and as he is advancing in knowledge and skill and due to his understanding of the country and climate he will be the coming factor for the country's advancement.

The native is the market, rather than export, for a great amount of S.A. produce and given an opportunity, to earn and receive better pay he will acquire a much better living standard.

The raw native is a pretty crude creature, but if taken while young it is remarkable how fast he will learn and become proficient in duties assigned to him.

It is a shame that the white man draws the pay and the nigger does the work in South Africa.

Fred M. Linscott.