THE LIFE-HISTORY OF THE NATIVE MINE LABOURER IN THE TRANSVAAL.

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I. The Recruitment of Native Labourers.

In the month of June, 1905, no fewer than 99,518 natives were employed on mines and works in the labour districts of the Witwatersrand, and the neighbouring mining areas of Klerksdorp, Heidelberg, and Vereeniging. In addition to these there were also working on the gold mines over 45,000 Chinese labourers. This vast industrial army is recruited from many and in great measure from very distant sources. Of the natives employed during the year ending June, 1905, the whole of British South Africa furnished only just over 32 %: less than 2 % came from British Central Africa: 60 % were drawn from the Southern Portuguese East Coast provinces; and 3·6 % from the Portuguese provinces north of latitude 22°. German South-West Africa contributed under 1 %, but this area has latterly ceased to be a source of supply.

Of the British South African Colonies the largest individual contributor was the Cape Colony with 12·3 %. The Transvaal itself supplied only 9 % of the whole, and therefore over 90 % of the labour supply of the mines was drawn from sources outside the jurisdiction of the Transvaal Government, and no less than 64·5 % from areas which are outside of British territory altogether. It is very clear therefore that the labour is in no way forced. It is a purely voluntary service.

The facts we have cited are sufficient, we think, to show how complicated a matter the provision of an adequate labour supply really is, and to indicate how far-reaching must be the ramification of the recruiting agencies employed by the mining companies.

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The total number of natives actually recruited for the year 1904 was over 87,000. These recruits are obtained in two ways. First simply by voluntary local engagement in Johannesburg, a source which accounted during the last year for no less than 30 % of the total supply. This fact may at first sight appear to be at variance with the figure we have just quoted of 9 % as the percentage contribution of the Transvaal. The natives who are locally engaged may come however from all sources. They are made up of natives who have come from other local employment to the mines (41 %), or who have transferred from one mine to another on the expiry of their initial contracts (25 %). A considerable number also are new arrivals direct from their own homes. The natives from Natal and Zululand are engaged in this way, since direct recruiting for the Transvaal mines is prohibited in Natal owing to the insufficiency of the native labour in that colony for its own needs. A number of Cape Colony natives also prefer to come to Johannesburg directly and choose their employment for themselves. The large proportion of these local engagements is an important and an encouraging fact. It shows for one thing that a considerable and an increasing number of the natives elect to continue mining work when their first contracts have terminated, and it is important also in this that the natives who do so re-engage have already become acclimatised and inured to the conditions of mining work.

The bulk of the native labourers are however recruited directly from their homes in British South Africa or in Portuguese territory. The magnitude of these operations is shown by the fact that from the six British South African Colonies (Natal being excluded) over 28,000 natives were drawn in 1904, and from Portuguese territory over 31,000. Prior to the war the common practice was for independent individuals to engage the natives in their kraals, transport them to Johannesburg, and there transfer them to the various mining companies, a system which had perhaps some advantages but had also the very obvious and serious drawbacks of lack of organisation and of adequate control. Since the war, however, the mining companies have united to establish a central organisation, the Witwatersrand Native Labour Association, which directly controls the whole of the recruiting operations. The European agents and recruiters employed by the association in the different colonies and territories at present number 196: the number of native runners acting under them is probably over 2000; and "in the larger and more important districts the recruiting operations are under the direct control of agents of the association chosen as having had long and varied experience of the country and the natives, and working often

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under the most trying and unfavourable climatic conditions." The direct supervision of their work is in the hands of the local Government in each case. In Portuguese territory the recruiting agents hold licenses from the Portuguese Government: in the Transvaal similarly a Government license is necessary, regarding which the regulations are most stringent, while in the Cape Colony also the Government regulates the work of the recruiters and is responsible for their supervision. From Rhodesia natives are obtained through the Rhodesian Native Labour Bureau, in British Central Africa, by arrangement with the Imperial Government, which in February, 1904, sanctioned the importation of 5,000 labourers under defined conditions. As a further check the preliminary agreements entered into between the recruiting agents and the natives must in every case be *viséd* by an official of the local Government concerned prior to their entry into the Transvaal. By this means it is secured that every native should be fully informed of the terms of his contract before coming into the country, and that the possibility of misrepresentation regarding wages or conditions of work should in this way be obviated. Some complaints of this sort were heard a year or two ago; they emanated almost entirely from Cape Colony natives. That such irregularities should occur at all is certainly regrettable, and they clearly tend to defeat their own ends, for the native has a strong sense of fair and unfair treatment. They certainly have had no sanction from the management of the Native Labour Association. The provisions we have mentioned should, however, prove sufficient to remedy any cases of complaint on this score.

The Southern Portuguese East Coast provinces of Gazaland and Inhambane furnish, as we have stated, the bulk of the native labour supply to the mines, and we may therefore briefly describe the method by which these natives are recruited and brought to the Rand. "Over twenty European recruiters and conductors are employed in this wide area and the organisation throughout the country is very complete. There are twenty-six stations, the headquarters of the European recruiters, and a large number of receiving stations in charge of native headmen. Licensed runners are employed in large numbers who frequently visit every kraal in the area allotted to them. The native recruits are collected at the various receiving places, escorted to the camp of the nearest European recruiter, where their engagements are registered, and from there they are started off in parties on regular dates for Ressano Garcia, under the charge of European conductors, for

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entraining to Johannesburg. From the district adjacent to the port of Inhambane natives are shipped at that port, and conveyed by sea to Lourenco Marques and thence by rail to Johannesburg. From the time the native leaves his kraal he is provided with food and shelter during the whole period of his journey. At the time of his being recruited he also receives a blanket, and this is supplemented at Ressano Garcia or Waterval Boven by a more complete supply of clothing, which consists of an undershirt or vest, a woollen sweater, a pair of trousers, a belt, and one woollen or two cotton blankets. This outfit is charged at 20*s.* against the native's first month's wages." The supply of clothing is issued to all natives coming from hot countries as a precaution against the adverse effects of the great change of climate which they experience on coming to the Rand, especially during the colder months.

Before the natives leave Portuguese territory a Portuguese official examines the agreements between the natives and the agents of the association. At Ressano Garcia also the first medical examination of recruits takes place, and those who are considered unfit are weeded out and sent back to their homes. Natives coming from areas north of the Zambesi *viâ* Lourenco Marques are detained at Ressano Garcia for ten days for this purpose. Of the natives from Portuguese territory passing through the Ressano Garcia Depot over 500 were in this way rejected out of over 31,000. The natives then proceed to Johannesburg by special trains, and in these the boys are provided with covered coaches with seats and latrine accommodation. At the depot at Waterval Boven, where they first emerge upon the High Veldt, the journey is again broken for twelve hours, for food and rest and the issue of additional clothing. Cases of sickness which have arisen on the journey are detained here.

Arrived at Johannesburg from whatever source, the natives proceed to the Central Compound of the Native Labour Association, a well-built roomy compound, a special section of which is designed and used as a detention depot. Here a fresh medical examination takes place, and all incoming natives from tropical areas, and those from other sources who are not entirely fit to be drafted to work immediately, are detained until in the opinion of the medical officer they are ready to proceed to the mines. A medical officer specially employed by the Native Labour Association devotes his entire time to this and similar work, and to kindred duties in connection with the importation of Chinese labourers. All natives coming from the Northern Portuguese Provinces, from British Central Africa, and from Rhodesia, from the

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areas in short which we have described as tropical, are detained for at least ten days, as sickness is liable to break out amongst these natives immediately after their arrival, and the period of detention affords a fuller opportunity for the further weeding out of the unfit. Of the 5,037 natives from tropical areas so detained for the six months ending December 31st, 2·1 % died in the hospital of the detention depot, and an additional 3·7 % were rejected as unfit. Of these deaths 10 % were from tubercular phthisis. During the six months ending June, 1905, of 11,790 natives detained 10 % were afterwards rejected as unfit, 85 % were allotted to the mines, 1·9 % died in the detention hospital. The average period of detention was a fortnight. These figures will give some conception of the working of this system of preliminary detention. Its value is obvious, but its existence should not lead to any relaxation of the stringency of the medical examination on the frontier, or of the care in selection of recruits in the kraals. The raw material of much of our labour supply is clearly not of the best quality. The natives of the tropical and sub-tropical African territories, which are malarial, are physically much inferior to those of the more temperate regions, and are naturally much more highly susceptible to the adverse effects of sudden change of climate. On the operations of the Native Labour Association the expenditure for 1904 was nearly a quarter of a million pounds, the cost of each native imported being 56*s.* 4*d.* No profit is allowed upon these operations.

The usual system of payment of labour agents is a payment by head. But a check is exercised on the too indiscriminate recruiting of unfit individuals. No payment is made for those who are rejected at the preliminary examination at the border, and, if the number of further rejects at Johannesburg is in any instance found to be excessive, the cost of the return railway fares of those rejected may be charged against the recruiting agent concerned.

In many instances advances are made to the natives on engagement in their own homes. In Pondoland they receive advances in the shape of cattle or grain: in the Northern Transvaal the amount due for hut tax is advanced where necessary; and all natives from the Northern Portuguese districts receive advances for the same purpose—in British Central Africa also an advance is made to every native engaged. These sums are willingly paid off by the natives out of their earnings on the mines.

The provision of an adequate labour supply is obviously a very uphill task. A standing difficulty in the labour problem is caused by

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the constant reflux of the natives from the mines to their own homes, and their preference for short labour contracts. Up to the beginning of this year Cape Colony natives, with the exception of the Pondos, were engaged chiefly on terms of six months' duration; the Bechuanas and Basutos contracted for four months. Transvaal natives also were chiefly engaged on six months' contracts: those from Rhodesia generally for six months. The contract term of the natives from the Portuguese territories and from British Central Africa has always been for twelve months. Local engagements are mostly from month to month. The South African native is not at present a continuous worker. "Labour on the mines means absence from home and family; it means irksome and often hard and dangerous work, and the abandonment of the ease and pleasures of native village life." His previous traditional existence as a herdsman and small cultivator has not developed in the native the necessity for continuous labour. The conditions of land tenure which render a large section of the natives independent of the necessity of wage labour except in particularly bad seasons, and the economic necessities and seasonal routine of their home life all tend in the same direction. Of the total complement of possible native workers in British South Africa not more than one half are in the opinion of the Native Affairs Commission available for outside labour at any one time. During the present year an attempt has been made to secure labour for longer periods, and it is now proposed to engage all natives from Basutoland, Bechuanaland, Cape Colony, and the Transvaal, for minimum periods of eight months. How far this attempt will be successful time will show, but it is clearly desirable in the interests of the industry to obtain labour for these longer terms: for it is only after two or three months' work that the native reaches a reasonable standard of industrial efficiency. Natives who have remained for a year or two on the mines become most efficient and valuable workers, as every mine manager knows. Such a system would tend also to some extent to lessen the incidence of sickness on the mines, since this always falls most heavily on new arrivals.

A further point which certainly deserves consideration is the recommendation of the Native Affairs Commission that where practicable labour locations should be formed in the vicinity of the large labour centres, where the native worker could reside with his family near his employment. By this means the Commission hope that the present migratory tendency of native labour might be to some extent counteracted. Such a system, however, could have only a limited application,

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and it should not be forgotten that the susceptibility of the natives to pulmonary disease might render *too* prolonged a duration of mining work as dangerous, though, in another way, as too short a term unquestionably is. Yearly contracts will at the best probably always remain the rule for the majority of the native workers, although it is becoming comparatively common for East Coast boys to remain for as long as eighteen months continuously upon the Rand.

II. Conditions of Life at the Mines.

From the Central Compound of the Native Labour Association the natives are drafted off to the different mining companies according to their varying requirements. The number of natives employed by the different mining companies varies considerably. Some employ both Chinese and native labourers. Those which are worked solely by white and native labour employ from 500 or more for some of the smaller mines, up to 1,000 or 1,500 which is a common figure, and in some instances to over 2,000 boys.

After allotment the natives are taken to the pass office, which is under the control of the Native Affairs Department of the Government. Here their names and contracts are registered. Each native receives an identification pass, which is held for the time being by his employer and returned to him on his discharge. It contains particulars of his name, his family, tribe, and place of residence, the terms of his contract, and the name of his employer. This pass system is essential for the control and regulation of the enormous uninstructed mass of coloured labour. It affords a means of guarding to some extent against desertion or the avoidance of obligations specifically entered into, while it in no wise interferes with the legitimate liberty of the native, or with his freedom of contract. It protects both the employer and the labourer.

If on their arrival on the mines any natives should be in the opinion of the medical officer of the company unfit for work they are kept back. If they are regarded as permanently unfit they may be returned to the Native Labour Association for repatriation: if they are considered to be only temporarily so they are not at once sent to work. On or shortly after coming to the mines they are vaccinated, if this procedure has not previously been successfully performed. The natives as a body are exceedingly well vaccinated: their condition in this respect is certainly better than that of the white population of the Rand. Arrived on the mines the natives are drafted off to various kinds of work. In general one may say that the distribution of the

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boys is one-third on surface work and two-thirds on underground work. For the whole of the gold miners of the Rand the proportion stands at 34·9 % of surface to 65·1 % of underground workers, but in individual cases this relation is subject to considerable variation. The underground boys work on alternate weekly night and day shifts, so that no boy works for longer than a week continuously on night shift. East Coast boys make the best underground workers and form the large majority of them. Cape Colony natives and Zulus particularly were formerly very averse to working underground, but this feeling is no longer so strong as it was, and on several mines a considerable proportion of the underground workers are Cape Colony boys.

The mine compounds are usually built in the form of a large open square or series of connected squares, in the middle of which are the kitchens and the large open baths. The compound buildings are of stone, or brick, or brick and iron, or in a few of the older buildings sometimes of corrugated iron and wood simply. The individual huts accommodate twenty or thirty boys, or even in the recent types as many as fifty boys. Formerly the floors of the huts were universally simply earth floors as those of the natives' huts are in their own homes, and the natives were allowed to put up sleeping bunks for themselves. The huts were badly lighted and ill ventilated, and the native himself is a staunch opponent of all means of ventilation, which he labours ingeniously to obstruct. In these huts the boys fed and slept, cooking their meat and warming their porridge over open coal stoves, which not being provided with flues were certainly injurious to health. But the native likes such a stove and delights to squat beside it and talk. Not altogether indolent, for he can do hard work in his own way and at his own time, he is disinclined and unaccustomed to continuous labour, content like Diogenes if one will just get out of his sunshine, and with a fixed disinclination for the voluntary pursuit of cleanliness in his clothing or surroundings. Good-natured and docile in the main, he is easily amused, and has a keen appreciation of a joke if it be of the physical sort, and nothing delights him so much as the mock war-dances which are frequently held on Sundays in the compounds. In many of his wants and ideals he is a mere overgrown child, but he is not without an underlying vein of sensualism and cruelty and cunning.

During the past two years great improvements have been made in the matter of housing. Many entirely new compounds have been erected, to many large additions have been made, and others have been substantially improved. The earth floors have been almost everywhere replaced by impervious floors of brick and cement, or asphalte; stoves

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with flues are being provided which serve the double purpose of heating and ventilation; and moveable bunks, set in fixed frames and arranged in two tiers, have taken the place of the heterogeneous collection of wooden oddities which the natives used to put up for themselves. Windows also have been introduced. Certain general conditions regulating cubic space, lighting, heating, and ventilation, have been laid down in the recent report of the Coloured Labourers' Compound Commission, and these are being observed in all new buildings and reconstructions. The newer types of hut are commodious and well built. The adoption of all of these improvements is not yet universal, but there is every reason for saying that it soon practically will be, except in the case of one or two companies which have only a very short life in front of them. The native was perfectly content with the old type of hut, which broadly reproduced the conditions he was accustomed to, and he does not always take very kindly to the changes which are being effected. To maintain a due degree of cleanliness in the huts even under the best structural conditions is no easy matter, and the native is in this respect a passive resister of the first order. Very many compounds have their large open concrete baths which the natives use frequently; in some compounds covered shower-baths have recently been introduced. Latrines on the bucket system are universal.

The natives can go freely in and out of the compounds, but they must not leave the mine on which they are employed without special passes from the compound overseer. These, however, are freely granted.

The basis of the native labourer's food is maize or "mealies," as it is in his own home; but prior to the last two years South Africa did not supply sufficient maize for its own consumption, and recourse was then had to imported maize, which was not always of the best quality. Maize if diseased or at all decomposed is a well-known cause of disease, and this has been one cause amongst others of the prevalence in the past of scurvy on the mines. After careful consideration of the needs and habits of the natives the following scale of diet was some time ago recommended for general adoption by a committee of mine medical officers:

	Mealie meal (maize)	1½ lbs. per day,
	Meat	3 lbs. per week,
	Fresh vegetables	2 lbs. per week,
	Biscuit	2½ lbs. per week,
	Treacle	1 lb. per week (to be cooked with the mealie meal),
and	Salt	3½ ozs. per week.

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In addition to this an issue of coffee (or soup) was recommended during the winter months, and a controlled issue of Kaffir beer during the summer months. The adoption of this scale of diet is now general, and complaints regarding food are we believe non-existent. There is no question that the diet provided is much more wholesome and more abundant than anything which the native is accustomed to in his own home. This diet lies in nutritive value between the "moderate exercise" and the "hard work" scales of Playfair. Compared with the average of other standard European dietaries it is rather deficient in fats and proportionately in excess in carbohydrates.

The surface boys are mainly employed at the headgears and sorting tables, in the workshops, in the mill or "battery," and in the cyanide and slimes works. The latter are open works and consequently in the cold months involve to those employed upon them an element of risk from exposure. Hence the necessity which we have often urged of compelling the native so employed, who is hopelessly careless in these matters, to be well clad during the coldest months of the year. The Cape Colony boys, who are often employed on surface work, are more careful in this respect. The hours of work are here ten hours a day, beginning at 7 a.m. It is to be understood of course that the work of the natives on the mines is unskilled labour, and is always performed under the supervision of a white worker.

The underground boys are employed, some in drilling holes by hand with drill and hammer, each boy being expected to drill one hole of three feet per shift—if he drills more he is paid *pro rata*—some in assisting the rock drill miners and the timber-men, some in shovelling and tramming the broken rock. On the present system they work in two shifts. The day shift goes underground at 6 to 7 a.m., and comes up nominally from 4 to 5 p.m.; but on the outcrop mines many boys come up earlier when their work is finished. The night shift similarly goes down at 6 to 7 p.m., and comes up from 4 to 5 a.m.

The law provides that no work should be performed in or about a mine after 12 midnight on Saturdays up to 12 midnight on Sundays (with the same provision for Christmas Day and Good Friday), except such as is necessary and unavoidable in order to maintain the mine and machinery in proper working condition. The ordinance relating to the working of mines strictly lays down what this necessary and unavoidable work is, and the Government inspectors see that it is not exceeded. It includes the running of the mills and the chemical treatment of ore.

And now as to Hospitals. In the past these have certainly varied very greatly in accommodation, comfort, and efficiency. Many were

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totally inadequate in all these respects. But they are now everywhere being brought up to a proper standard. A large number of new and excellent hospitals have recently been erected. Very many also are now under the direct charge of a white man, under whom are native orderlies, a system which is necessary in all the larger hospitals. The creation of a well-trained corps of native or coloured orderlies should certainly be made an object of policy, but it must be confessed that the local material to hand for this purpose is not very satisfactory. In our experience it requires the most constant work on the part of all concerned to maintain a satisfactory standard of comfort and cleanliness amongst the native patients, even when special hospital clothing and blankets are provided, as is now everywhere customary.

It is the rule for the medical officers to visit the hospitals daily and inspect all boys reported sick, who are previously collected by the compound manager and his police. No boy who has reported himself as sick is allowed to go to work without the sanction of the medical officer. Special hospital diet of milk, fresh or condensed, bread, coffee, vegetables, and meat is provided for the sick boys, and stimulants when necessary.

Natives disabled by accident when in the service of the mining companies are compensated according to a fixed scale; in the case of death or permanent total disablement £10, in the case of permanent partial disablement £5; to umfaaus or young boys half the above amounts.

The general scale of pay has hitherto been from 1*s.* 6*d.* to 2*s.* per day worked, for underground workers who drill at least one hole: for surface workers the same rates obtain. Over the whole complement of the mine the average day's pay per head is about 1*s.* 10*d.* or 1*s.* 11*d.* It is now proposed, however, to place all hammer drill boys on piece work at $\frac{1}{2}d.$ per inch: other work to be paid according to a defined schedule. Two months' grace is usually allowed for the hammer drill boys to become reasonably efficient. In regard to wages the policy and practice of the mining companies is we believe universally equitable. It is their obvious interest that it should be so. The system of time-keeping and ticket-marking is most elaborate and is designed to allow of no loophole for irregularity. The wages contract of the Native Labour Association also is certainly perfectly clear and precise, and the inspectors of the Native Affairs Department state that complaints as to wages are few and almost invariably due to misunderstanding. In addition to his money wages the native receives housing, rations, and

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medical attendance and hospital treatment free. The wages at present paid are higher than they have ever been, and skilled boys can and do earn more than the standard sums mentioned. One point which must be remembered is that the attraction of high wages depends on the quality and diversity of the needs of the labourer. The needs of the Kaffir boy are few, and it has been found by experience that the raising of wages has not been followed by a proportionate increase in the labour supply. As a matter of fact there is a danger that higher wages, and the inability to spend them, brought about especially by enforcement of the liquor law, would tend to make the native labourer more independent of the necessity to work, and would merely minister to his constitutional love of idleness by enabling him by a short spell of work to purchase a long period of leisure.

To sum up. The native labourers on the Rand are recruited mainly from territories outside the Transvaal, the majority even from territories under another flag. It is absurd therefore, as we have said, to suppose that their labour is in any way forced. And equally erroneous is it to suppose that the general conditions under which they live and work are as a whole prejudicial to their well-being. Everyone who comes in contact with the natives coming to the mines and those returning to their homes, is struck by the fact that the physique of the latter is in marked and favourable contrast with that of the former. And that the life is one with which they are satisfied is shown by the fact that, of the natives recruited from Portuguese territory, from 50 % to 60 % are old mine boys, and that this proportion tends to increase. Further the number of boys locally engaging or re-engaging for service amounts to over 2000 a month, and this number also is steadily increasing. The bearing of these facts on the question of native mortality we have already alluded to: its importance will appear presently.

We do not base these statements on the evidence of our own observation solely. Dr Pinto Coelho, Superintendent and Medical Officer for the emigration of natives from Portuguese territory into the Transvaal, visited the Rand in 1904, and, as the result of an investigation made locally on behalf of the Portuguese Government, stated that he was convinced that the natives were better housed and fed on the Rand than in their own homes, and he added that as the mines were extending recruiting operations in Portuguese territory he was glad that good care was taken of the natives. During the same year Mr Navarro, Curator of Natives for the Portuguese Government in Johannesburg, after an extended series of visits to the mining compounds, stated that

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he was satisfied with the conditions prevailing, and with the treatment which the natives received. "I have," he said, "interviewed boys at every place, and they all stated that they were most satisfied with the treatment they received....I did not hear a single complaint although I asked particularly whether any of the boys had a grievance."

Rather more than a year ago considerable attention was given in the House of Commons to a report, made by Mr Brownlee to the Cape Colony Government, regarding the treatment of natives on the mines of the Rand. To this report there were appended the detailed statements of several native headmen who visited the mines along with him. Now Mr Brownlee himself stated that "on the whole the treatment (of the native labourers) is good, and the mine owners and compound managers are anxious to make the treatment and conditions of native labourers as congenial to them as possible." He was certain, however, that there were exceptions. He spoke for example of cases of ill-treatment of the natives by white miners and native police employed by the mines. That such cases sometimes occur is certain from the nature of things; but the remedy lies to hand. The Native Affairs Department has a staff of inspectors who are in constant touch with the mines, and with the natives in the compounds. They listen to all complaints brought before them, and in several cases of alleged assault have secured the conviction of offenders. To their vigilance the care of the natives in this respect may safely be left, and we believe that the prevailing conditions on this score are satisfactory. In our own experience extending over several years one or two cases of assault resulting in serious injury to native workers have certainly occurred, but they have been very few in number, and in every case the offender, whether white man or native policeman, has been punished.

Complaints regarding wages and regarding instances of alleged misrepresentation on the part of recruiting agents were also cited. To these we have already alluded, and we have called attention also to the means which are now taken to safeguard the natives against the possible recurrence of irregularities of this nature.

Several of the native headmen who accompanied Mr Brownlee alleged as another cause of complaint that the natives are forced to work when ill. As a matter of fact our experience is that the natives as a whole tend to conceal their illnesses and very frequently do not voluntarily report themselves when sick. When a boy has reported sick he is not in our experience allowed to go to work till the sanction of the medical officer has been obtained. As to the further complaint

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that when sick they are not allowed to return home, that is on the face of it absurd. Such a case came to the notice of one of us recently, when a Basuto headman repeatedly asked that he should be allowed to take home with him to Basutoland one of his boys, who was sick in hospital with enteric fever. Very naturally his request was refused, and no doubt he went home with a grievance. Boys who are unfit are allowed to go home, provided that they are permanently unfit for work, that they are fit to travel, and that they are not suffering from infectious disease. Such cases are sent to the Native Labour Association compound, whose officials see that they go home in company with others.

III. Causes of the High Mortality among Native Labourers.

And now we come to what is perhaps the most important aspect of our subject, the consideration of the causes of the relatively high mortality which has in the past prevailed amongst the native labourers on the mines. To the discussion of this we propose to devote what remains of this paper.

Very shortly after the resumption of work upon the mines after the war the attention of the Administration and of the mining community was forcibly called to this matter, and accurate and detailed statistical observation was instituted in November, 1902. Both in 1902 and 1903 the mortality of the native workers on the mines was certainly very high. In the first half of 1903 it was at the rate of 61·96 per 1000 per annum ; during the second half it rose to 80·36. As the outcome of a conference between the Commissioner for Native Affairs, representatives of the Chamber of Mines, and certain of the medical officers of the Mines, a Committee of Mine Medical Officers was appointed early in 1903 to report on the causes of the high mortality, and to suggest remedies to meet it. In June, 1903, the Committee submitted a report in which the main causes of the death-rate amongst the mining natives were described. The report contained also numerous practical recommendations for the betterment of their condition, and the fact that the range of these suggestions was a wide one showed that it was not the opinion of the signatories that the conditions under which the natives then lived and worked were ideal. This medical report was substantially adopted by the Chamber of Mines in September, 1903, and compliance with its main provisions was urged upon the mining companies

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in a memorandum of the Executive Committee of the Chamber. It was also accepted by the Department of Native Affairs as affording a reasonable standard to which the treatment of the natives should everywhere conform.

The results of this investigation showed that the excessive death-rate then prevailing was due to the incidence of one or two main diseases. Of these pneumonia was by far the most deadly; for the year 1903 indeed the line of pneumonia dominated the whole mortality curve, and during the latter half of 1903 no less than 63 % of the total mortality was found to be attributable to pneumonia, phthisis, and other respiratory diseases. The virulence of the infective agent, the pneumo-coccus, was shown at this time by Dr Pakes to be extremely high. Cerebro-spinal meningitis, caused also in the majority of cases by pneumo-coccal infection, enteric fever, dysentery, and diarrhoea were the next most important factors in its causation, and scurvy and malaria also directly and indirectly were the cause of a considerable mortality.

The high incidence of these diseases was attributed to the operation of several different causes—the poor condition of those natives who had remained on the Rand during the war, all of whom had suffered from the hardships incident to it and many of whom were scorbutic; the fact that a very large proportion of the natives employed on the Rand were raw boys recruited directly from tropical or sub-tropical and malarial districts, and that very many of these arrived in a weakly and scorbutic condition owing to the conditions of privation then existing in their own homes, so that for both these reasons they were ill fitted to stand a sudden change in climatic conditions, especially the change to the extremely rigorous seasonal conditions of the winters of 1902 and 1903 upon the Rand. Further the influence of these factors was found to be accentuated by the nature of the occupation of the natives as mine labourers, by the conditions under which they lived, and by the fact that insufficient means were taken to protect them from the adverse effects of climatic change.

To meet these conditions the Committee of Medical Officers recommended the adoption of the following measures—better supervision of the clothing of the natives on their being recruited and when at work, stricter selection of recruits, the provision of a detention compound at Johannesburg for weaklings and for those temporarily unfit for work, improvements in the conditions of housing, a defined scale of diet, improvements in the character and administration of the

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mine hospitals, provision of change houses at the shaft heads, and the enforcement of mine sanitation.

No compulsory legislation was considered necessary to effect these improvements, since the leaders of the mining industry were fully alive to their necessity. From that time indeed the mining companies have given substantial proof of their determination to improve the conditions of life upon the mines. The clothing of recruits has been provided for, the detention compound has been established, the housing of the natives has been immensely improved and on many mines fully complies with all requirements. Many entirely new compounds have been built: others have been largely added to or altered. The diet supplied is now, we believe, adequate; and a large number of new compound hospitals have been erected. Of the principal mining companies 30 had, up to September, 1904, already provided change houses, and in this respect the others should certainly follow suit. Mine sanitation is now under the care of the sanitary authorities. This brief summary is sufficient perhaps to show the character and the scope of the improvements that have been and are being made, and it gives very definite evidence of the general desire of the mining companies as a whole to bring themselves up to the standard. And even if this be attributed, as is the fashion in the economic text-books, simply to the interested desire of the capitalist to get and keep his labour supply, the record of substantial betterment is still definitely there to his credit.

The winters of 1902 and 1903 were extremely rigorous, that of 1904 was exceedingly mild, and as a result of this fact, of the better physical condition of the boys when recruited, and of the adoption of the measures we have just described, a great reduction of the mortality was shown. For the first half of 1904 the rate was 38·08, for the second half 48·79. For the first six months of 1905 it has been 46·99[1].

[1] [According to quite recent official figures the death-rates per 1000 for the year 1905 were 47·1 for native labourers and 18·4 for Chinese labourers.

In order to afford some standard of comparison we add the following death-rates for England and Wales, compiled from the data given in Part II of the last decennial Supplement (1897) to the Annual Reports of the Registrar-General.

	All occupied males	Coal miners	Ironstone miners	Tin miners
Mean annual death-rates per 1000 living between the ages of 15 and 45	7·1	6·3	5·9	7·3

There appear to be no available statistics showing the death-rate of South African natives when employed under ordinary conditions in agricultural or other work, and it must be borne in mind that this death-rate may be considerably higher than among Europeans in Europe. *Editorial Note.*]

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I think that for the reasons we have stated we are justified in regarding 1902 and 1903 as having been abnormal years. The past eighteen months, however, we may accept as representing more normal and average conditions. And yet when all this has been put to the credit side we have still to face the fact that even to-day the mortality, although it has been greatly reduced, still remains a relatively high one. In pneumonia particularly a very striking reduction has taken place but it still remains the most important individual cause of mortality, and in other diseases the decline is less marked—phthisis still contributes a steady 10 or 11 % of the deaths, and there are indications that it is even somewhat on the increase both amongst native and white workers. Cerebro-spinal meningitis still accounts for 7 to 8 % of the total mortality, and enteric fever, dysentery, and diarrhoea for from 8 to 13·5 %. Scurvy has shown a very satisfactory fall, mainly owing to the better feeding of the natives both in their own homes and on the mines. The direct contribution of malaria to the mortality is small, but its indirect effect in predisposing to other acute diseases, and especially to pneumonia, is very considerable.

In an attempt to elucidate this question several factors have to be considered.

1. *The first of these we may call the territorial, or climatic and racial factor.*

We have already pointed out how very various are the territorial sources from which our native labour supply is drawn. We have before us a statement, furnished by the Department for Native Affairs, which shows the relative rates of mortality of the natives who came from these different areas during the year ending June, 1905. And if we arrange the territorial groups in an ascending mortality scale we obtain the following results.

				Complement
The natives from Natal and Zululand show a death-rate of			12·8 per 1000	(2579)
,,	Cape Colony	,, ,,	17·2 ,,	(10104)
,,	Basutoland	,, ,,	28·2 ,,	(2798)
,,	Transvaal	,, ,,	38·6 ,,	(7400)
,,	South East Coast Provinces	,,	39·9 ,,	(49396)
,,	British Bechuanaland	,,	41·2 ,,	(1043)
,,	British Central Africa	,,	118·3 ,,	(1463)
,,	Rhodesia	,,	118·6 ,,	(2395)
,,	Northern East Coast Provinces			
	Mozambique	,,	128·2 ,,	(1630)
	Quilimane	,,	163·9 ,,	(1458)

Of course the number of natives drawn from these several territories

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differs greatly, and the results stated are clearly less reliable for the smaller numbers. All of the sources named, however, contributed during the year over 1000 natives, and the majority, of course, as we have seen, furnished very much larger numbers. And these figures do, we believe, furnish an approximately accurate indication of the relative susceptibility to disease, under existing conditions, of the recruits drawn from these different areas. It is at once apparent that natives coming from those territories whose climate most nearly approximates to that of the Rand—from Natal and Zululand, Cape Colony, and Basutoland—have quite a low mortality.

The figure for the Transvaal itself is greatly raised by the fact that a large number of Transvaal natives come from the sub-tropical northern districts of the Colony.

The Southern East Coast provinces of Gazaland and Inhambane, lying south of latitude 22°, show a higher but still a moderate mortality. These areas are sub-tropical and malarial. But the natives coming from the tropical and malarial territories of Rhodesia, British Central Africa, and the Northern Portuguese provinces of Quilimane and Mozambique, consistently show a markedly higher death-rate. How powerful a factor this is in raising the general death-rate is shown if we summarise the results thus:

The general death-rate from sickness alone for the twelve months ending June, 1905, was	44·1
The death-rate of 74,115 natives not including those coming from tropical areas was	35·02
The death-rate of 7570 natives coming from the tropical areas of British Central Africa, Mozambique, Quilimane, Rhodesia, and Damaraland was	130·1

The importance of what we have called the territorial factor is thus at once apparent. If we could exclude the quite limited numbers, some 9% of the whole, who come from tropical areas, the general death-rate would be at once reduced to the manageable proportions of 35·02.

And not only do the natives from these areas contribute a disproportionate amount of the mortality, but there falls on them also a disproportionate amount of the sickness on the mines. The change from tropical climates to the more rigorous conditions of the Rand renders them on first arrival highly susceptible to attacks of malaria, and (often indeed as a direct consequence of malaria) to pneumonia and

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other acute diseases. The point has often been raised that we know very little regarding the normal death-rate of these natives in their own homes. In a recent communication to the *Star*, the substance of which we give for what it is worth, since we have had no opportunity of confirming it, it is stated that the death-rate of British Central African natives employed in that province on railway construction is as high as 80 per 1000. This high figure, however, is attributed to the effects of malaria upon natives coming from the uplands of British Central Africa to work in the lower lying and malarial districts.

Now if these conditions were permanent it might perhaps be pertinently asked whether it would not be better to discontinue recruiting from these sources altogether. But further investigation reveals the important qualifying fact that the excessive susceptibility to disease of these natives is not a permanent feature. For when we come to analyse in detail the incidence of mortality amongst natives from tropical or sub-tropical areas, the significant fact appears that this incidence falls with exceptional severity upon new arrivals. A statement prepared some time ago by the Witwatersrand Native Labour Association showed that among the east coast natives, allotted during the seven months from June to December, 1903, the mortality was at the rate of 63 per 1000 per annum. Of the natives who died 45·2 % died *within one month after allotment to the mines.* After one month's service the mortality steadily declines, and after three months' service the fall is striking. Similar figures are shown for the natives from the Northern Transvaal and from British Central Africa.

The same result was obtained in an investigation, which we personally undertook during the past year, in order to arrive at some explanation of the very varying rates of mortality on different individual mines. For this purpose we selected 13 mines for detailed examination. Six of these we took because they had for the official year 1903–1904 very high death-rates, varying from 70·7 to 91 per 1000. Three we took as having death-rates approximating to the average for the year, namely from 51·3 to 56·5. The remaining four selected showed low death-rates, varying from 19·5 to 35·6.

We found that in all these cases the diet supplied was substantially the same, so that this fact may be eliminated as a cause of the observed variations in mortality. We then investigated the condition of the housing of the native workers on these mines, and we found that this also bore no direct relation to the death-rate. The two lowest on the list had compounds of the old type which had not been altered. The

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huts had earth floors, no special provision for lighting and ventilation, no special bunks or stoves, and the cubic space allotted was no greater than on the others. On these two mines no change houses were provided. On the other hand those mines which had made the most improvements frequently figured high upon the list. We do not say of course that these improvements are of no value, but they were clearly not a main determining factor in explaining the variations in the death-rate. We next examined the territorial distribution of the natives employed, but we again found that this afforded no explanation of the variations. Mine M for example has 96·5 % of its complement composed of Portuguese natives, and mine L 89·4 %, as compared with 62·96 on mine A, and 79·79 % on mine E.

When, however, we went into the matter of recruiting we found a clear clue. The mere replacement of boys did not of itself explain the variations, since all the mines replaced from 73 to 138 % of their complement during the year. Naturally the mines which had fewest replacements had a relative advantage, but mines M and K with a comparatively low death-rate had a replacement of 100 and 138 % respectively, and mine A with the highest death-rate a replacement of 126 %.

We then in every case divided the recruits on the one hand into natives allotted to the mines by the Native Labour Association *who had been recruited direct from native territories*, and on the other hand into natives *voluntarily engaging*, who comprise, as we have stated, natives whose term of service has expired and who re-engage locally, and also a proportion of Transvaal, Natal, and other natives. These natives are acclimatised. Having done so we calculated the respective numbers of these two classes of recruits as percentages of the average complement, and the resulting figures are shown graphically in the accompanying chart. It is at once obvious that there is a direct relation between the death-rate and the number of raw recruits allotted. Broadly speaking and allowing for minor variations, which in the complex conditions operative may not admit of obvious explanation, we may say that, for the 13 mines subjected to investigation, to which in the chart we have added mine N, the death-rate varied directly as the percentage of recruits drawn directly from native territories, and inversely as the percentage locally engaged and composed of natives who are so far acclimatised. *This was the one relatively constant feature* which appeared as a result of this investigation.

And a further important fact appeared. For the explanation of

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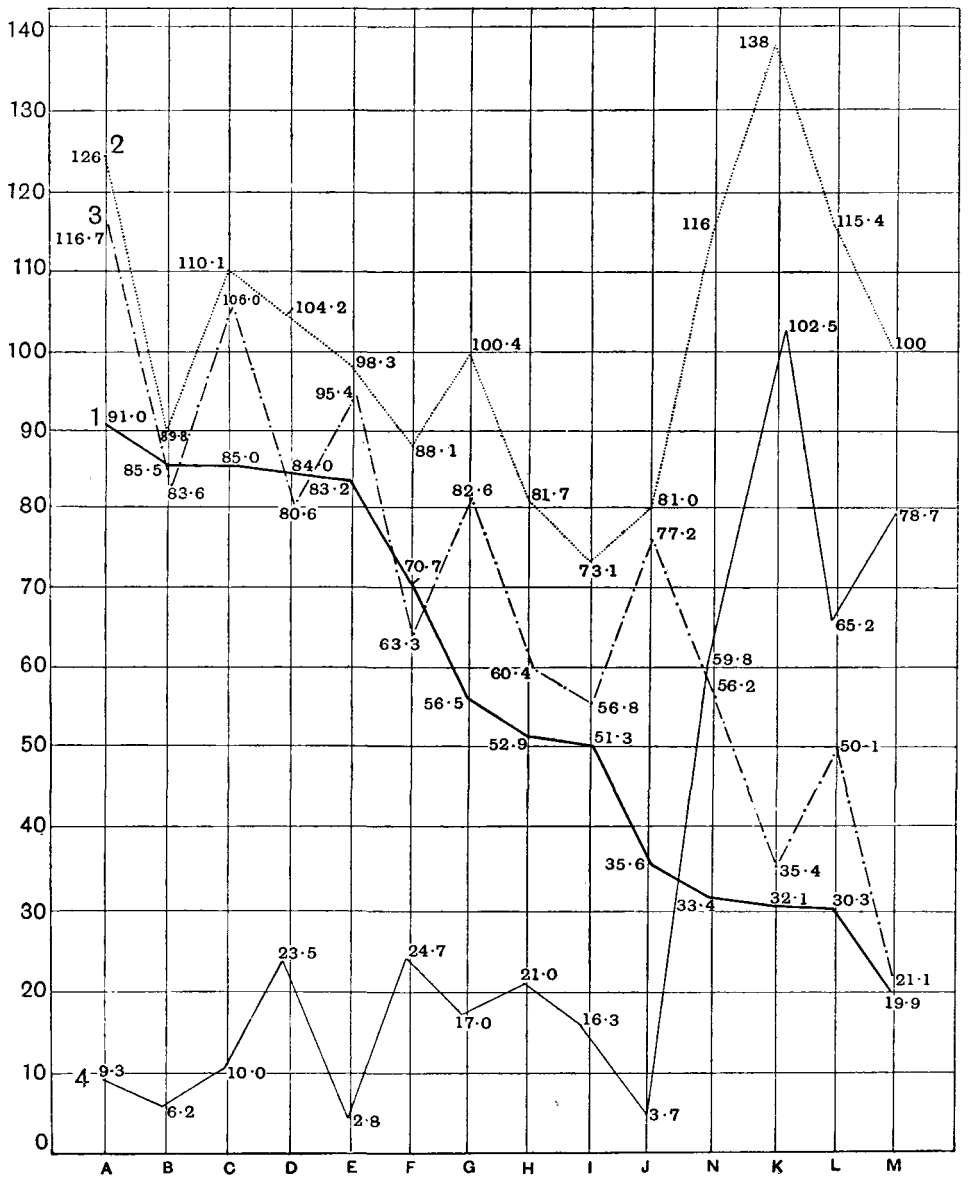
CHART

Showing for Thirteen Selected Mines:—

1. The total death-rate per 1000 for the year July, 1903, to June, 1904.
2. The percentage of the total complement replaced during that period.
3. The percentage of the total complement replaced by Natives recruited directly from Native Territories.
4. The percentage of the total complement replaced by voluntary boys locally engaged.



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this result does not lie in the supposition that the natives locally engaging were mainly Transvaal or Natal or Cape Colony boys. 56 % of the local recruits were Portuguese natives from south of lat. 22°. We found that it was impossible without the exaction of enormous labour to accurately allocate the death-rates among these two classes of recruits. But the high percentage of Portuguese natives occurring amongst the local recruits, and the fact that mine M, with 92 % of its local recruits and 96·5 % of its total complement composed of Portuguese natives, still shows a mortality of under 20 per 1000, prove that the Portuguese native when acclimatised has quite a low mortality. This result, taken in conjunction with the data we have just quoted regarding the rapid decline of mortality amongst these natives shortly after their arrival, strongly supports the contention that a comparatively short period of inurement to local conditions of climate and work is sufficient to enormously lower the death-rate of those natives who are on first introduction most susceptible to disease.

More recent experience goes to show that, in the particular case of the natives coming from the tropical districts, the same process of acclimatisation is comparatively rapidly effected, although it is probable that in their case it takes somewhat longer to accomplish.

From what we have said it is apparent that the climatic factor is very much more important than the racial factor, that what we have called the "territorial factor" has to be read rather in a geographical than an ethnical sense. Although the relative susceptibility to disease of certain tribes may be permanently somewhat higher than that of others this is clearly not a predominant element. *The predominant problem is that of acclimatisation*, and the results we have stated go to show that no long time is usually required to effect this process. To this end all the efforts of the mining administration should tend, and this necessity is already recognised. Much, as we have seen, has already been done. From the tropical territories recruiting is now carried on as far as is practicable only in the warm season, and the method of selection and detention of recruits we have already fully described. The policy of endeavouring to secure recruits for somewhat longer terms of labour is also of great importance in this connection. It may be that in the end it will prove that it is really not economically worth while to recruit natives from certain of these tropical areas, or from certain portions of them. From half of the province of Quilimane recruiting has in this way been recently altogether stopped by the Native Labour Association. But it must be borne in mind that although these

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tropical territories at present supply a comparatively small number of labourers they are potentially capable of providing large numbers, and that in time the mines may establish in them, as they already have done in the Southern East Coast provinces, a more or less permanent *clientèle* of natives who have already worked upon the mines, and are therefore to a certain extent inured to local conditions of labour and climate.

2. *The second important factor is that of occupation.*

And as the territorial and racial factors can only be usefully interpreted when taken in conjunction, so too the effects of the factor of occupation must be read in close association with both of these. Gold mining like tin mining is at the best an unhealthy occupation, as the vital statistics of Cornish tin mines in England have abundantly shown, and as our local experience of the heavy toll exacted on the lives and efficiency of certain sections of our white miners only too clearly demonstrates. On the gold mines of the Rand the relative proportion of native underground and surface workers has been for the past year as 65·1 to 34·9%, a little less than 2 to 1, and as the influx of unskilled coloured labour continues the constant tendency is to increase the proportion of underground to surface workers. When however we analyse the relative contribution of underground and surface workers to the total deaths it is found to be not as 2 to 1 but as 5·5 to 1. 85% of the deaths occurs amongst the underground boys, 15% amongst the surface boys—and this proportion is maintained with a curious constancy for all the main diseases. Clearly the mortality of the underground workers is very greatly in excess of that of those employed upon the surface. The total death-rate from sickness alone amongst the native workers, employed upon mines and works affiliated to the Witwatersrand Native Labour Association, was as we have seen 44·1 per 1000 for the past official year. And if with the guidance of the data we have quoted we attempt to allocate as rates per 1000 per annum the proportional contribution of underground to surface boys we find that while the death-rate of the former—the underground workers—is approximately 56 or 57 per 1000, that of the surface workers stands at 19 or 20 per 1000.

It is not possible to state definitely how far this excess is due to conditions of occupation alone. For the bulk of the underground workers are drawn from the Southern East Coast provinces and the Transvaal, and a large majority of the natives from the Northern East Coast provinces and the other tropical areas we have mentioned are also

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employed underground. But while this fact undoubtedly operates in raising the mortality rate of the underground workers as a class, the converse proposition is also to some extent valid, that the fact that these natives *are* mostly employed underground must tend also appreciably to raise the *territorial* rates of mortality. Until a careful census is made of the territorial distribution of *occupation* and its accompanying mortality on the mines, we cannot satisfactorily appraise the respective influences of these two converging factors. And no comprehensive data on this aspect of the question are at present available. This is what we meant when we stated that the territorial and occupational factors must be read in close conjunction.

But there can be no question that the factor of occupation is in itself a very important one. The temperature underground averages about 70° F. or 75° F., and there is therefore during the winter months a considerable risk to the underground workers, emerging from this heated atmosphere into the cold air of the surface, of contracting chills, which predispose to pneumonia and other respiratory diseases. It is on this account that we have always advocated the necessity of change houses at the shaft heads, where soup or coffee may be supplied and the boys enabled to change into dry clothing. Change houses are already generally provided for the white miners, and many companies have provided or are providing them for the natives also. This we regard as a matter of great importance, but here again one has to contend with the inveterate carelessness of the native himself, who regards the simplest precautions as superfluous. On the whole the clothing worn by the native worker has improved during the past two years, but he does not as yet realise the advantages of adequate covering and the need of a *change* of clothing, or the disadvantages and risks of an incomplete adoption of European modes of dress. The well-considered attempt of the Native Labour Association in this direction, which we have described, does little more than tide the native over his journey to the Rand, and perhaps a month or two of his service on the mines.

And, in addition to the simple but important fact of the differences of underground and surface temperatures, there are the added risks due to the vitiation of underground air by dust, by the noxious gases produced by explosives, and by organic impurities. The intermittency of the native labourer's work, of which we have already spoken, is a valuable safeguard against the effects of these influences, a safeguard which we should therefore aim at conserving within reasonable limits. But cases of silicosis amongst natives who have worked for long periods

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underground certainly occur, tubercular phthisis is no inconsiderable factor in the death-rate, and it is very probable that a certain proportion of the cases of extraordinarily acute pneumonia which are frequently seen amongst the natives may be due to irritant poisoning by nitrous fumes.

Deep level mines have shown for the past two years a considerably higher mortality than the outcrop mines. In 1903–4 the outcrop mines had an advantage in rate of mortality of 9·4 per 1000, in 1904–5 of 16·2 per 1000. A probably greater degree of vitiation of the underground air in the deeper mines, and a longer daily exposure to it, combined with the fact that of the "locally engaged" boys the majority prefer to work on the outcrop mines, may be regarded as the probable causes of this difference.

Now these factors, the climatic and the occupational, are under the present economic conditions relatively *permanent.* Due care and prevision may greatly mitigate their effects, but whatever precautions be taken and however much expense be incurred they will always contribute to heighten the rate of mortality. And in addition to these factors such other influences as recurrences of scarcity in the native territories with consequent privation, or extremely rigorous seasonal conditions on the Rand, may from time to time again adversely affect the death-rate. Other factors are more under control, including such matters as housing, diet, hospital treatment, clothing, change houses, and the like; and these, as we have stated, are now being brought up to a satisfactory standard. The Native Affairs Commission have advised that for this end a system of Government regulation of these conditions should be introduced and enforced, and an ordinance providing for such a system is now under the consideration of the Legislative Council. Legislation of this nature is probably advisable. But its object should be, not to extend the precautions which the great majority of the mining companies have already taken, but to secure uniformity in their adoption. Considerable elasticity would have to be allowed in its enforcement, for not a few of the mines have now only a few years' life in front of them, and it is not by any means always, as we have shown, in the compounds of the older type that the higher death-rates prevail.

What the mining companies have got to do is just what they are doing, namely so to improve the conditions of mining life for the natives as adequately to meet these permanent antagonistic elements. And for this there is no one panacea—the incidence of disease must still be met by watchful care all along the line. The task is an uphill one, not only

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because of the relatively permanent nature of the antagonistic conditions, but also for the not unimportant reason that one gets little or no help in it all from the native himself.

The facts we have related clearly point to a steady and progressive improvement in the conditions under which the natives live and work on the Rand. And we must not forget to give in this matter a high meed of praise to the action of the present administration, not only in the careful supervision exercised by the Native Affairs Department, but in another very important matter, namely the strict enforcement of the Liquor Law. Prior to the war, Sunday on the mines was a carnival of drunkenness which the officials of the late Government did little to check. Now it is an exception to see more than a sprinkling of drunken natives. The net result of all these agencies is that at present the mining companies can count on from 90 to 95 % of their boys being continuously at work, as compared with some 80 % or less before the war. This fact surely speaks for itself.

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