Is it over the entire State, or over a certain distance in order to benefit a certain industry?—I think most railways belong to the State now.

And they all charge as cheaply as the one you quote?—Yes; they are all worked on the same cheap basis, and I know that State has made enormous progress within the last few years.

LOUIS IRVING SEYMOUR was next called, and he stated:

I am a mechanical engineer, and have been resident in Johannesburg since July, 1896. Before that time I lived in London.

Chairman.

On what points can you give the Commission evidence?—I can give you some evidence on railways, the transport of coal, and the equipment of deep level mines.

This evidence you have about coal and freight rates, is it the same as the other evidence we have got?—I have given more carefully prepared statistics, and some suggestions with regard to the transport of coal.

About coal rates and freight we have got a lot of evidence. and if you will hand in your statistics then you can give your information about deep level mines?

Witness.] There is a little evidence about the transport of coal I would like to give. I will refer first to American railways. In 1892 all the American railways carried 88,241,050,225 tons one mile, for which they received ·442 of a penny per ton per mile. The lowest rate was one farthing per ton per mile, and the highest ·866 of a penny per ton per mile. To show how the industry and the whole of South Africa, not alone in the Transvaal, is handicapped, I will quote some further figures. We have machinery in America at one half-penny per ton per mile; in the Cape and Orange Free State it is 2½d. per ton per mile; in Natal it is over 3d.; in Portuguese territory more than 4d; in the Netherlands Railway by the Cape it is 7 7-10ths. pence, which is 15 times the rate in America, and by the Rand Tram it is seven times. Especially the rate on coal is exceedingly heavy here. The standard rate for conveyance in America, over a mountainous journey in specially built trucks, which cannot be used on the return journey, is one-third of a penny per ton per mile. The rate from Springs to Geldenhuis Deep is 10·80 times that amount. I think a great saving might be made in the transport of coal. There could be a saving in bagging by the adoption of scientific trucks, which will save us the total cost of off-loading coals. The average selling price of coal at the pit's mouth is 8s. per ton, and the average distance covered by rail is about 30 miles on the Rand. The tons consumed by the mines, which were transported by rail for last five months, were 83,080 tons per month. If the railway rate were reduced to 1¾d. per ton per mile all round, including terminal charges, this rate would be still more than five times the rate in America, and the saving for the last five months would be more than £18,000 per month in transport. Bagging costs 2s. per ton, and off-loading at the Jumpers Deep, for instance, where we have accurate accounts kept, costs 2s. ⅜d. per ton. These three items could be reduced in the following amounts—£18,173 for transport, £7,477 for bagging, £8,308 for off-loading, making a total of £33,958 per month, equal to £407,500 per annum. The estimated costs for equipment and development on an average for deep level mines having 100 stamps is:—For construction, £231,000; development, £197,000; total money actually required for equipment, without paying for claims at all, is £428,000; so the average cost per stamp erected is £4,280. For a mill having 200 stamps, construction will cost £315,000; development, £236,000; total, £551,000; so that the average cost per stamp is £2,755. These amounts are found principally from actual costs, only the items yet remaining

to be constructed being estimated on. One reason for the high cost of the construction work is the large outlay necessary for cyanide and slimes plant, and the necessity of laying down such plant as will save as much labour as possible. Now with regard to the points on which any saving can be made in deep level construction. We have on one mine the sum of £93,788 spent for construction alone; £61,587 for material, or 65⅔ per cent., and £27,799, or 29⅔ per cent. for labour, and general expenses were £4,400, or 4·69 per cent. I do not think that this percentage for labour is too high, as I find in large manufactory works in England that the average cost for labour was 31.7 per cent. on the average of the total cost of machinery manufactured. I have taken one mine, the Jumpers Deep, for instance, at which data are very carefully kept. Up to December 31st, 1896, we have spent for construction, £101,000; for development, £111,000; total cost, £212,653. The wages during that time amounted to £41,710 for white labour, and £14,128 for kaffir labour, or £55,838, which comes out 26¼ per cent. of our total expenditure. The items on which we hope to save are, for material, about 75 per cent., and for labour, 25 per cent. So our chance for saving on machinery is three times as much as on labour. In developing the deep level mines our total pay for a white man is on an average 19s. 6 6-10d. per day. That is higher than is usual with mines which are stamping, since they have lower paid men than we have, during the development and construction stage, as nearly all underground men are first-class miners, and for construction a large number of high-priced mechanics are employed. I have developing wages here for a few gold fields, of which I have got accurate information. These are new fields in the same sense as the Johannesburg fields are. Transport is so easily obtained all over the world that we are in competition with these fields to some extent for labour. We have on the Crown Reef 18s. 6d. paid per shift; on the Jumpers Deep 19s 4d.; in Montana, in the northern part of America, we have 14s. 4d.; in Nevada, one of the Western States, we have 17s. 3d.; in British Columbia 20s. 6d. So I do not think our wages are greatly in excess of those paid in other parts of the world. In my special department here I have a number of draughtsmen making plans, the four principal men receive £27 10s. per month. The four principal men in engineering works in England, with which I was connected, receive £21 2s. 6d. per month, so our wages are about 29 per cent. higher here. In England the cost of living, bedroom, etc., is £8 12s. per month; here it is £11 a month for less accommodation. The extra cost of living here is 28 per cent., and the wages are 29 per cent. more. Such items as cab fare, railway tickets, going to the theatre, and other expenses which men have to incur, are very much greater here, and I do not think that those wages can be reduced at all without sacrificing efficiency. I come now to the cost of machinery on board the steamer in England, America, or the Continent, and the cost of erecting it in working order on the mines. I have only got a few items here, and the average cost of all these items is £13,928; the cost of erecting on foundations, without any buildings over them, is £34,079, so that machinery costs, erected at our mines, two and a-half times more than its original value. From the Chamber of Mines' reports, it would appear that 5,135 stamps have been erected, and during the year 1896, 3,740 of these were running at some period or other. If we estimate the amount of money which has been spent on stamps, and what we find it costs us at present, and which I think is cheaper than the early mines were working upon, it would amount to about £22,000,000 sterling spent upon construction and development of mines, not including the payment for claims. Then that amount will be about £12,000,000 for construction and £10,000,000 for development. I have here a table which I need not give at present; it contains the number of men employed on the mines per stamp.

Mr. *de Beer.*

What do you mean by 30 per cent. for sorting?—I mean, taking the case of the

Ferreira, that for each 100 tons of mining done, 30 tons waste rock is sorted out—that is, rock that has no gold in it.

What do you reckon is saved by that?—Mr. Johns has made a statement by which he shows that the saving is £200,000 per annum.

Is it a general principle adopted on all the mines?—It is being adopted. I may say that at the Geldenhuis Deep we have commenced sorting, and for 7¾ per cent. allowed for this we have an increased value of the yield of 7·10ths. dwt. It does not pay to crush the rock that has no gold in it. At the Crown Reef also we have had better results. We began sorting last month also.

Is it a new method?—No, it is not.

It has only just lately been applied?—It has been applied for more than three or four years by some companies.

It is now commencing to get general?—Yes.

The Ferreira mine carry this on with an average profit of £200,000 per annum?—No; an average saving.

Now, when sorting gets into general use, will it not revolutionize mining?—Many companies have too many stamps erected, and the manager likes to see all the stamps working. This sorting would prevent this, in other words, the rock containing the gold can be crushed with fewer stamps than when crushing the waste as well.

Then there is proof when the Ferreira can save over £200,000 a year, others can also save money?—You can save money by sorting rock, but where the leader and the Main Reef come together you cannot sort at all.

Are there many mines where it happens that the Main Reef and the leader come together?—A great many. At the Geldenhuis Deep we have the Main Reef, which is not very rich, while the Main Reef leader is very rich. If we sort out the intervening waste rock we can crush more of the Main Reef, but the Main Reef being much poorer, we do not get a corresponding advantage. It means crushing rock which will return perhaps 6 dwts., where the leader may run 2 or 3 ounces, so that the total gain in sorting is not in proportion to the total amount crushed.

The mines to the west of Johannesburg have not the Main Reef and leader close together?—But they have a thin reef, which in order to crush, you must take out a large percentage of rock.

And this makes sorting necessary?—Entirely so, many mines could not be worked at a profit without sorting.

Mr. *Smit.*

How would you describe the cost of living on the mines?—Well, a draughtsman in the States would pay for board, two rooms, and washing, £5 18s. a month; and in Johannesburg some of my draughtsmen, who occupy similar positions, pay from £11 to £12 and have only one room.

How do the salaries of officials run?—They are less in Johannesburg than in Australia, and slightly higher than in the Western States of America.

What do you mean by mine officials?—The manager, engineer, mill manager, and cyanide men.

And these are paid more in Australia than here?—Yes. I may state that I was managing director of a large manufacturing firm of mine machinery in London, which also did business in America. We were constantly asked by mining companies in Australia, the Straits of Borneo, and South America, to send out managers, mill managers, and other skilled workers, and the average rates in Australia were much higher than here. We have had to pay as much as £3,000 per annum for a first-class underground foreman. The demand during the past two years has been very great

for managers, and this class for Australia, British Columbia, South America, Siam, and the Straits of Borneo.

How does the salary to miners here compare with those paid in Australia and America?—The salary to miners is about the same as in Australia, less than in British Columbia, and slightly more than in the Western States of America. I have given a table about that. It is to say that these are new fields, which are in competition with us.

Have you compared the salary of the miner in America with the salary of the miner here, and the expenses of living there with the expenses of living here?—Yes. The expense of living would be 25 or 30 per cent. less than here.

On the salary he earns in America, how much per cent.?—The salary, in some cases, would be slightly less—say as 17s. 3d. is to 20s.—that is 12 per cent.

You calculate the cost of mining per stamp?—Yes. The total construction and development is £4,280 per stamp for a 100-stamp mill, and for a 200-stamp mill it is £2,750 per stamp. That is to say you must have the same offices and the same shaft, and nearly the same general construction on the surface for the 100-stamp mill as for the 200-stamp mill. The larger mills are cheaper.

Mr. *de Beer.*

Can you explain why the Geldenhuis Estate Company is marked on this diagram as being far nearer the danger-line than the Geldenhuis Deep?—I think the value of the rock varies in diagonal chutes, and in certain parts of the Geldenhuis Deep, especially the upper part, it is much poorer than the lower levels. At present the Geldenhuis Estate is now working rock of less value than they did on some of the upper levels, so that certain levels are poor, and at another level you may find much better rock, and it is quite possible that below that you may find poor rock.

Can you tell us the average return per ton of the Geldenhuis Estate?—The recovery is given on the plan. I could not tell you exactly.

I know that the deep level is 6½ dwts?—It is a little more just now.

I know that, but what is the average?—In February the recovery was 7.42 dwts., and the yield for the month of April was still more, but we are working now in better levels and the rock is slightly better.

You do not know the yield of the outcrop company?—I have a complete table, but unfortunately I have not got it by me.

The Chairman then thanked Mr. Seymour for the information supplied, and asked him to hand in the statistics about the yield.

The following Statistics and Diagrams were handed in by witness in the course of his examination:—

OCEAN FREIGHTS.

(All per Ton of 2,240 Pounds.)

UNION, CLAN LINE, and AMERICAN and AFRICAN STEAMSHIP LINE.

(From New York to South Africa direct.)

FREIGHT RATES ON MACHINERY.

	Cape Town and Algoa Bay.	East London and Port Natal.
Not exceeding 2 tons in weight	32/6	40/-
„ 2½ „	37/6	45/-
„ 3 „	42/6	50/-
„ 3½ „	47/6	55/-
„ 4 „	52/6	60/-
„ 4½ „	57/6	65/-
„ 5 „	62/6	70/-
„ 6 „	67/6	75/-
„ 7 „	72/6	80/-
„ 8 „	77/6	85/-
„ 9 „	82/6	90/-
„ 10 „	87/6	95/-
„ 11 „	92/6	100/-
„ 12 „	97/6	105/-

NOTE.—Ten per cent. primage is charged on all the above rates, returnable in the form of rebate. The latter is claimed on the 31st January and 31st July of each year, and is payable six months thereafter.

SAILING VESSELS—LONDON TO EAST LONDON, &c.

	East London.	Algoa Bay.
1. Mining Machinery and Cement (iron drums), up to 3 tons	18/9	17/3
2. Boilers, &c., 3 tons to 9 tons	23/-	22/3

All per ton weight or measurement (ship's option). Freight net. No primage.

STEAMER FREIGHTS.

(All up to 3 tons weight.)

From LONDON, LIVERPOOL, or GLASGOW to :—

Destination.	Name of Line.	I.	II.	III.	IV.
East London ...	Bucknall and Clan	51/3	38/9	32/6	30/
East London ...	Castle and Union (intermediate)	52/6	40/-	32/6	30/-
East London ...	Castle and Union (mail) ...	55/-	41/3	32/6	30/-
Algoa Bay ...	Bucknall and Clan	42/6	31/3	25/-	22/6
Algoa Bay ...	Castle and Union (intermediate)	45/-	32/6	25/-	22/6
Algoa Bay ...	Castle and Union (mail) ...	47/6	33/9	25/-	22/6

Class I.	... ...	Machinery, Boilers, &c.
„ II.	... .	Trucks, Piping, &c.
„ III.	... ...	Rails, Soap, Earthen Pipes, &c.
„ IV.	... ...	Bar Iron and Steel, Cement.

On packages over Three Tons weight, 5/6 additional on every Ton or Half-Ton up to Five Tons.

From Five to Twelve Tons, 5/6 per ton additional. No charge for heavy lifts or heavy measurement.

SEA FREIGHT.

From New York to London ... ... 12/6 per long ton.

From Chicago to London on heavy boilers, *via* Kanawha Despatch (Railway, 1,000 miles; sea distance, about 3,300 miles), 50 cents. per 100 lbs., equals 40/6 per ton of 2,240 lbs.—(Weight or Measurement *not* at ship's option.)

SEA FREIGHT.

From New York to San Francisco, *via* Galveston by sea, thence by rail on South Pacific Road to San Francisco:—

In Summer	...	1/5¼d. per 100 lbs.;	per ton, 2,240 lbs.,	£1 12s. 2d.
„ Winter	... ...		„ „	£2 6s. 0d.

RAILWAY RATES.

For comparison of Indian and other Railway Rates per mile, *Engineering*, Vol. 42, p. 214, says:—

CHARGES PER TON PER MILE IN PENCE.

Class of Goods.	India.	England.	Belgium.	Holland.	Germany.
Grain	0·85	1·54	0·79	0·96	1·13
Cotton	1·53	2·77	1·74	1·61	1·61
Cotton Goods	1·28	2·64	2·22	1·61	2·06
Sugar	0·85	1·12	1·60	0·96	1·32
Average ...	1·13	2·02	1·59	1·28	1·55

ENGLISH RAILWAY RATES IN 1893.

From *Engineering* (Vol., 65, p. 48 Jan., 1893.)

Name of Railway.	Old Maxima per Ton per Mile.	New Maxima per Ton per Mile. First 20 Miles.	Next 30 Miles.	Next 50 Miles.	Remainder of Distance.
Great Eastern	2d.	1·80	1·50	1·20	0·70
Great Northern	2½d.	1·80	1·50	1·20	0·70
Great Western	2½d.	1·80	1·50	1·20	0·70
London and North Western ...	2½d.	1·80	1·50	1·20	0·70
London, Chatham, and Dover ...	3d.	1·80	1·50	1·20	0·70
North Eastern	2d.	2·0	1·75	1·50	1·25
South Eastern	2d. to 3d.	1·80	1·50	1·20	0·75
Taff Vale	2½d.	1·80	1·50	1·20	0·70
Lancashire and Yorkshire ...	2d.	1·80	1·50	1·20	0·70

THE COST PER TON PER MILE IN GERMANY HAS BEEN :—

Year.	Cost in Pence per Ton per Mile.
1868	1·063
1878	0·911
1880	0·852
1882	0.815
1884	0·792
1886	0·788
1888	0·753
1890	0·749

Ordinary recent rates for machinery over various roads in America per ton of 2,000 lbs.

	Total charge.	Distance (Miles).	Rate per ton (per Mile).
Chicago to Atlanta, Georgia ...	47/7	1,500	0.3807d.
„ Syracuse, New York ...	18/10½	670	0.3381d.
„ Denver, Colorado ...	94/5	1,041	1.088d.
„ New York, New York...	24/7½	960	0.3078d.
„ San Francisco, Cal. ...	90/3	2,416	0.4485d.

On the following named materials the rate from Chicago to New York in 1892, and which practically governed all railway rates in the Eastern States, was per ton of 2,000 lbs. in car-load lots :—

(Distance: 960 miles average).

	Cotton Goods.	Stores.	Coffee.	Starch.	Sugar.	Soap.	Machinery.
Material Rate in pence per ton per mile	0·513	0·257	0·257	0·257	0·257	0.2668	0.308

For American Railways the total actual cost of carriage to the Railways themselves was as under :—

Railway.	Pence per ton per mile. 1887.	1888.	1889.	1890.
Main Line Branches ...	0·3298	0·3103	0·3053	0·2955
United Railroads of New Jersey	0·6303	0·6007	0·5761	0·5663
Philadelphia and Erie Railroad...	0·2659	0·2511	0·2709	0·2511
Lines East of Pittsburg and Erie	0·3595	0·3398	0·3348	0·3201

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ort of and for coal on rican rail- s in 1892.

In 1892 all the American Railways combined carried 88,241,050,225 tons one mile, for which they received $799,316,042, or at an average rate of 0·898 cents; equals 0·4422d. per ton per mile.

The lowest charge was on the Chesapeake and Ohio Railway, which was 0·2561d. per ton per mile. The highest was the New York, New Haven, and Hartford, which sent most of its heavy freight by steamer. Its railway rate was 0·866 per ton per mile.

dends of erican rail- s in 1892.

During this year the average rate of dividend paid by all the railway companies combined was 2·11%, and this amount was paid by 40% of all the lines. During the same time, 15% of all lines paid no interest on their debentures.

Comparing the various average rates above cited, we have

German (latest quoted)	...	0·749d. per ton per mile, State Railways.	
English (average) ...	...	1·125d. do.	Private do.
American do. ...	...	0·4422d. do.	do. do.

Machinery, American	...	0.5126d. per ton per mile,	1·000 per cent.
do. Cape ...	...	2·34d. do.	4·565 do.
do. Orange Free State	...	2.34d. do.	4·565 do.
do. Natal ...	...	3·04d. do.	5·931 do.
do. Portuguese	...	4·07d. do.	7.940 do.
do. Netherlands-Cape	...	7·69d. do.	15·000 do.
do. do. Natal	...	5·06d. do.	9·871 do.
do. do. Delagoa		4·27d. do.	8·330 do.
Actual cost coal, Rand Tram	...	3·58d. do.	6·982 do.

The standard rate for conveyance of coal from Pennsylvania to New York over mountainous roads in specially built trucks for coal, which cannot be used on the return journey, is 0.3305d. per ton per mile.

The actual cost of coal from Springs Station to the Geldenhuis and Jumpers Deeps, in bulk, is 3·58 per ton per mile, or 10.83 times the rate in Eastern United States of America.

TRANSPORT AND HANDLING OF COAL.

The average selling price of coal at the pit's mouth in the Brakpan district is, roughly speaking, 8s. per ton, and the average distance hauled by rail, to the various mines, about 30 miles.

The average tons consumed by the mines, which was transported by rail for the last five months, was 83,080 tons per month.

I estimate the average value per ton delivered at the gold mines as 18s. per ton, say £74,772 per month.

Were the rate by rail reduced to 1¾d. per ton per mile, which is still 5·295 times the rate in Eastern United States, an economy in transport of 83,080 tons x 30 x 1¾d., equals £18,173 1s. 6d. per month, would result.

Bagging costs on an average 2s. per ton of coal, or, allowing 90% of all coal delivered to the mines in bags, bagging costs £7,477 4s. per month.

Off-loading at the Jumpers Deep, Limited, at which mine accurate costs have been kept, is as under :—

Average monthly tons consumed	...	...	960
Average cost off-loading (white labour)	...	...	£15 0 0
do. do. (black labour)	...	...	82 10 0
Total cost per month off-loading coal		...	£97 10 0

Average cost for off-loading coal per ton 2s. 0·375d.

Were side-tipping railway wagons adopted, as used in America, and which would suit existing sidings and bunkers, the saving in off-loading coal would be 2s. per ton, or £8,308 per month.

Summed up, the total saving per month to the industry is as under, viz :—

Railway transport	£18,173	1	6
Bagging	7,477	4	0
Off-loading	8,308	0	0
	£33,958	5	6

or £407,500 per annum.

MACHINERY SHIPMENTS TO JOHANNESBURG—ACTUAL COST.

Cost per Ton of 2,000 lbs.	An average lot of Mining Machinery. £ s. d.	Percentage of Total Cost.	Cast Iron Mortar Bases, Cored & Planed, Columns, Girders, &c. £ s. d.	Percentage of Total Cost.
F.O.B. London or Steamer... ...	31 5 0	75.64	4 1 10	29·75
Ocean freight (intermediate class) to Port Elizabeth	2 0 2	4·86	2 0 2	14·60
Landing	0 4 3	0·51	0 4 3	1·55
Wharfage 3/8% on home cost ...	0 2 4	0·28	0 0 3	0·09
Clearing and forwarding	0 3 9	0·45	0 3 9	1·36
Railage to Viljoen's Drift (3rd class)...	5 10 0	13·32	5 10 0	39·98
Viljoen's Drift transport to Johannesburg, including cartage ...	1 13 4	4·04	1 13 4	12·12
Transvaal duty, equals 1½% on home cost, plus 20%	0 7 6	0·90	0 1 6	0·55
Cost Delivery at Johannesburg ...	£41 6 4	100·00	£13 15 1	100·00
Difference between home cost and cost delivered Johannesburg ...	10 1 4		9 13 3	
If Carriage was 1·13d. per ton per mile, as was charged in India in 1886 on grain, sugar, cotton, and cotton goods, the railage would have been	3 7 3		3 7 3	
Leaving cost at Johannesburg ...	37 10 3		9 19 0	
Or difference between home cost and cost here per ton	6 5 3		5 17 2	
Saving per ton over present cost ...	£3 16 1	9·27%	£3 16 1	27·66%

Out of a total expenditure of £93,788 9s. 10d. for construction work at a Deep Level Mine, the proportionate amounts are :—

		Percentage.
Material	£61,587 19 3	65·67
Labour	27,799 16 1	29·64
General expenses	4,400 14 6	4·69
	£93,788 9 10	100·00

The percentage of total cost paid for labour, viz :—29·64, is a close approximation to the average cost of labour at a large machinery manufactory works in England, equipped with the most modern labour-saving appliances, at which factory the total labour was 31·7 per cent. of the total cost of the manufactured goods.

PROPORTION OF EXPENDITURE IN DEEP LEVEL COMPANIES.

JUMPERS DEEP, LIMITED.

From Commencement to December 31st, 1896.

		Percentage.
Construction cost	£101,047 2 3	47·52
Development cost	111,606 15 7	52·48

Total cost (including all expenses except payment for claims) £212,653 17s. 10d.

During that time the total wages paid was :—

Whites, 43,032 shifts at 19s. 6·62d.	£41,710 9 2	19·62%
Natives, 112,385 shifts at 2s. 6·17d.	14,128 1 0	6·64
Total wages	£55,838 10 2	26·26 of total Expenditure.

[No cost of native food included in native wages].

The development of a Deep Level Mine requires a heavy outlay for timber, dynamite, and coal, and during the development and construction stages, the average rate per man per shift is higher than would obtain in the same mine when stamping, as was stated by Mr. Sidney Jennings, whose figures are, for all white men, 18s. 6·4d. per man per shift.

In the mines of Montana, the standard rate of pay is $3·50 per day for all underground men; equals 14s. 4·3d.

In the Comstock mines of Nevada, it is $4·00 per day; equals 17s. 3d.

In the British Columbia mines, the standard rate of wages is $5·00 per day; equals 20s. 6¼d. per shift.

Tabulated, the rate per shift is :

	s.	d.	
Crown Reef	18	6·4	average.
Jumpers Deep	19	4·62	„
Montana	14	4·3	standard.
Nevada	17	3	„
British Columbia	20	6¼	„

All above are new goldfields with which we are in competition. From considerable experience in finding men for various responsible positions at mines for the Cape, Australia, the Straits, and South America, I think, generally, the salaries paid on the Rand are somewhat lower than are paid in the other districts mentioned above.

In my own department of mechanical engineering the rate of wages paid at present to the four principal draughtsmen is £27 10s. per month, while that paid to the first four similar men at Messrs. Fraser and Chalmers' Engineering Works, near London, was £21 2s. 6d. per month, for similar work, so that the same man in Johannesburg

receives 29·44 per cent. more wages than at London, while the cost of living is much greater here than there, per month, as follows:

	£	s.	d.	per cent.
Erith, England—Cost of bedroom, sitting room, fires, washing, beer, gas, etc.	8	12	0	1·00
Scranton, North America—Bed and sitting room, with bath and lavatory, fires, gas, washing, etc.	5	19	0	·69
Johannesburg—Bedroom, fire, candles, and washing ...	11	0	0	1.28

The above rates are given as the actual costs of living for a draughtsman or clerk All other items, such as clothes, cab fares, railway tickets, and pleasures, which go to make up the sum total of living expenses, are about double in Johannesburg to what similar things cost in England or America.

I consider the rate of pay for this class of men cannot be reduced without a great sacrifice in the quality of talent.

RELATIVE COST OF MACHINERY F.O.B. ENGLAND, CONTINENT, OR AMERICA, AND ERECTED ON THE MINES:

	Home Cost. £	Percentage.	Cost Erected. £	s.	d.
Single drum hoisting engine ...	1,550	48	3,218	11	1
Double drum hoisting engine ...	1,612	42¼	3,802	14	8
Double drum hoisting engine ...	2,160	47¼	4,582	1	0
Cornish pumping plant ...	1,528	33	4,625	17	3
35-drill compressor, complete ...	4,000	54¾	7,312	0	11
8 boilers, 125 h.p. each ...	2,736	31¼	8,738	9	4
8½ft. x 135ft. chimney, complete	342	19	1,799	17	0
	£13,928	40¾%	£34,079	11	3

Generally speaking, the principal machinery at any mine will be found to cost erected, two-and-a-half times its home cost.

STAMPS ERECTED.

From the Chamber of Mines reports, the total number of stamps erected on the fields to the end of 1896 is 5135, of which 3,740, or 72·8 per cent., have been running some portion of the time in the past year.

If we estimate the amount of money that has been spent in equipping and developing for 5,135 stamps, the same as above noted for a 100-stamp mill, *i.e.*, £4,2 per stamp, we have about 22 millions sterling spent to equip and develop the vari mines on these fields, aside from the money spent for claims. I believe not less th £5,000 per stamp has actually been spent.

Of this 22 millions sterling about 55 per cent. (or say, twelve millions sterli will have been spent on construction, of which amount I should say one mil sterling might have been saved if the railway rates had been such as would have returned a good rate of interest to its shareholders.

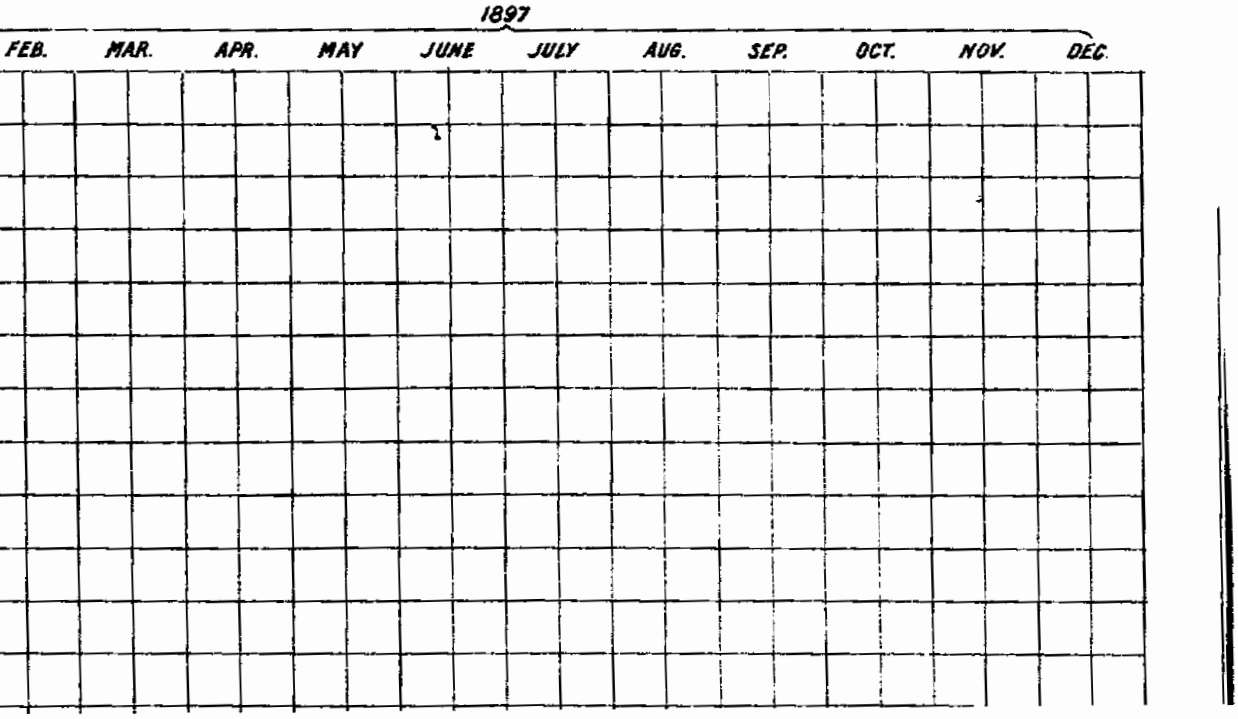
1897
FEB.
MAR.
APR.
MAY
JUNE
JULY
AUG.
SEP.
OCT.
NOV.
DEC.

TABLE OF DISTRIBUTION OF LABOUR AT THE DIFFERENT DEEP LEVEL MINES.

Name of Company.	Construction. Whites.	Blacks.	Development. Whites.	Blacks.	Total at Present. Whites.	Blacks.	Estimated No. when Stamping. Whites.	Blacks.
Glen Deep, 100 stamps	40	53	75	247	115	300		
Langlaagte Deep, 200 stamps ...	16	23	152	679	168	702	300	2,000
Crown Deep, 200 stamps ...	39	60	168	890	207	950	400	2,500 to 3,000
Nourse Deep, 100 stamps ...	37	137	111	560	148	697	140	1,200
Jumpers Deep, 200 stamps ...	42	160	138	740	180	900	150	2,000
Rose Deep, 200 stamps	75	310	145	565	220	875	260	1,500
Average ...	41·5	123·83	131·5	613·5	173	737·3	250	1,840

	Actual No. before Milling.	Estimated No. after Milling.	Average No. per Stamp.
Average number whites employed for 100-stamp plant	132	140	1·4
" " " 200-stamp "	194	280	1·4
" natives " 100-stamp "	498	1,200	12·0
" " " 200-stamp "	857	2,060	10·3
Whites employed at Robinson mine (120 stamps)		280	2·33
Natives " " " "		2,369	19·74
Whites employed at Geldenhuis Deep (155 stamps)		272	1·75
Natives " " " "		1,316	8·49
Whites employed at Crown Reef (120 " stamps)		246	2·05
Natives " " " "		1,749	14·60

Average number of white men when stamping, per stamp erected 1·79
" " natives " " " 13·03