

FEDERATED MALAY STATES.

REPORT ON THE ADMINISTRATION OF THE MINES  
DEPARTMENT AND ON THE MINING INDUSTRIES  
FOR THE YEAR 1923.

PART I.

ADMINISTRATION.

EXPENDITURE.

1. The following table shows the expenditure as estimated and as incurred :

Heading.	Estimated.	Supplement.	Total	Expenditure.	Saving.
	\$	\$	\$	\$	\$
Federal ... ..	134,059	3,528	137,587	93,273	44,314
Perak ... ..	185,312	...	185,312	158,331	26,981
Selangor... ..	86,868	14,310	101,178	93,619	7,559
Negri Sembilan...	33,020	...	33,020	30,033	2,987
Pahang ... ..	39,527	576	40,103	29,462	10,641
Total ... ..	478,786	18,414	497,200	404,718	92,482

Temporary allowances and acting allowances are not included in the above figures.

REVENUE.

2. Revenue was collected by the Mines Department as follows :

Federal ... ..	\$ 6,600
Perak ... ..	48,887
Selangor ... ..	28,146
Negri Sembilan ...	5,909
Pahang ... ..	2,384
Total ... ..	\$91,926

as against \$61,131 in 1922.

Classification was :

FINES, FORFEITURE AND FEES OF COURT—

Wardens' Court ... ..	\$ 5,717
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FEES OF OFFICE—

Court Mines, Fees of Court ... ..	356
Tin Buyers' and Smelters' Licences ... ..	19,749
Dangerous Trades Licences ... ..	100
Machinery Enactment ... ..	50,407
Non-Ferrous Metal Industry Enactment ... ..	230
Dulang Passes ... ..	7,894

REIMBURSEMENTS—

Sale of Padlocks ... ..	181
Hire of Boring Tools ... ..	347
Miscellaneous ... ..	6,945*

Total ... \$91.926

\* This sum includes \$6,370 being amount realised from the sale of the Steam Diamond and Hand Drilling Tools.



## REVENUE FROM ALL SOURCES RELATING TO MINING.

3. The revenue from all sources relating to mining for the years 1921, 1922 and 1923 was:

Heading.	1921.	1922.	1923.
	\$	\$	\$
Federal ... ..	1,051	2,664	...
Perak ... ..	4,036,349	3,778,730	5,236,557
Selangor ... ..	2,188,892	2,289,884	2,686,279
Negri Sembilan ... ..	25,664	25,441	20,218
Pahang ... ..	436,149	435,214	281,849
Total ...	6,688,105	6,531,933	8,224,903

Classification for the years mentioned is as follows:

Heading.	1921.	1922	1923.	Increase + or decrease— on 1922.
	\$	\$	\$	\$
Mines offices ... ..	53,194	61,199	84,331	+ 23,132
Premia on leases ... ..	179,345	221,026	113,242	— 107,784
Rent on leases ... ..	217,622	195,136	194,572	— 564
Exemption from cancellation ... ..	1,446	864	1,820	+ 956
Individual licences ... ..	2,960	2,111	2,431	+ 320
Prospecting licences ... ..	2,875	3,775	5,950	+ 2,175
Export duty on tin ... ..	6,153,360	5,979,579	7,738,370	+ 1,758,791
"    "    gold ... ..	...	80	57	— 23
Commutated royalty on gold ... ..	210	123	20	— 103
Royalty on coal ... ..	74,947	66,587	74,833	+ 8,246
Ore-buyers' and goldsmiths' licences	2,123	1,410	1,383	— 27
Export duty on copper ... ..	23	43	...	— 43
Dulang passes ... ..	...	...	7,894	+ 7,894
Total ...	6,688,105	6,531,933	8,224,903	+ 1,692,970

The increase in revenue from all sources relating to mining is mainly due to the higher price of tin during the early and the latter part of the year and to the initiation of fees for dulang passes.

## WARDENS' COURTS.

4. One hundred and seventy-six cases were heard in the Wardens' Courts as against 273 in 1922; there were seven appeals to the Supreme Court of which two were withdrawn, four were upheld, and one was allowed. In addition, 118 cases were brought before Magistrates' Courts and of the persons concerned 196 were convicted and three were dismissed.

## LEGISLATION.

5. A fee of \$1 for each dulang pass issued under section 108 of the Mining Enactment was charged with effect from 1st March, 1923, *vide Gazette* Notification No. 793 of 9th February, 1923. The forms contained in schedules (J) and (D) of the Mining Enactment were amended, *vide Gazette* Notifications Nos. 1808 and 4283 of 6th April, 1923, and 13th July, 1923, respectively. The new rules under the Mining Enactment were prepared and will be published as soon as the Mining Enactment is redrafted and passed.

The new Mineral Ores Enactment No. 16 of 1923 was passed and came into force with effect from 18th August, 1923.

Rule 10 of the Machinery Enactment No. 5 of 1913 was amended with the addition of a new sub-rule, *vide Gazette* Notification No. 5216 of 24th August, 1923.

## REBATES.

6. The rebate of 50 per cent. granted to Rawang Tin, Limited, was continued. It expires early in 1924.

Towkay Yap Yuen Ken, of Kuala Kubu, working on Mining Lease 2043, portion 729 of Peretak Mukim, was granted a rebate on all tin-ore won by lode mining from the above lease for a term of three years subject to certain conditions.

Three other applications for rebate are still under consideration.

The remission of export duty on gold was renewed for the year in favour of the Raub Australian Gold Mining Company, Limited.



## GENERAL.

7. Mr. G. E. Greig acted as Senior Warden of Mines throughout the year.

## STAFF.

*Officers went on leave in 1923.*

## ASSISTANT WARDENS AND INSPECTORS.

1. Assistant Warden and Acting Warden of Mines, Perak,  
Mr. A. R. Mynott went on leave on 13-6-23.
2. " Mr. A. E. Kershaw " 29-3-23.
3. " Mr. A. T. Bennetts " 7-5-23.
4. " Mr. F. H. Nash " 24-4-23.
5. " Mr. G. T. Holford " 6-6-23.
6. Supernumerary Warden of Mines, Mr. F. C. Marshall went on leave on 8-11-23.
7. Assistant Warden of Mines, Mr. A. J. Dishman went on leave on 21-12-23 prior to retirement.
8. Inspector of Mines, Mr. C. F. S. Jameson went on leave on 19-11-23.

## INSPECTOR OF MACHINERY.

1. Inspector of Machinery, Mr. G. C. Marshall was on leave from the beginning of the year.
2. Inspector of Machinery, Mr. A. M. Hunter went on leave on 7th December, 1923.

*Officers returned from leave.*

## ASSISTANT WARDENS AND INSPECTORS.

1. Assistant Warden of Mines, Mr. F. H. Nash returned from leave on 21-12-23.
2. " " Mr. A. E. Kershaw " " 23-12-23.
3. " " Mr. A. T. Bennetts " " 23-12-23.

## INSPECTOR OF MACHINERY.

1. Inspector of Machinery, Mr. G. C. Marshall returned from leave on 12-6-23.

## OFFICERS TRANSFERRED FROM ONE STATE TO ANOTHER.

1. Mr. Harris from Kuala Lumpur to Batu Gajah to act as Warden of Mines, Perak, on 13th June, 1923.
2. Mr. J. Laird from Batu Gajah to Johore—seconded to act as Warden of Mines, Johore, on 8th November, 1923.
3. Mr. G. A. Thrupp from Batu Gajah to Kuala Lumpur, on 9th June, 1923.
4. Mr. C. I. Robinson from Batu Gajah to Bentong to act as Assistant Warden, Ulu Pahang, on 7th May, 1923.
5. Mr. A. T. Bennetts on return from leave was stationed at Rasa.
6. Mr. F. H. Nash " " " Batu Gajah.
7. Mr. A. E. Kershaw " " " Ipoh.
8. Mr. J. S. Berger was transferred from Kuantan to Taiping at the end of the year.
9. Mr. D. M. W. Hutchison and staff were transferred to the Electrical Board on 1st March, 1923.

## MISCELLANEOUS.

1. Mr. J. Graham was appointed to carry out the duties of Chief Inspector of Machinery in addition to his own duties with effect from 1-5-23.
2. The appointments of Assistant Warden of Mines, Negri Sembilan and Kuantan, were abolished and a new post of Assistant Warden of Mines, Seremban and Kuantan, created.
3. The Assistant District Officer, Kuantan, was gazetted Assistant Warden of Mines to enable him to exercise certain powers under the Mining Enactment in case of emergency.



## PART II.

## TIN MINING.

## EXPORTS.

8. (i) The total export, as recorded by the Customs, of metallic tin plus 72 per cent. of ore amounted to 632,517 pikuls as compared with 592,806 pikuls in 1922, showing an increase of 39,711 pikuls in the year under review. Of the total quantity for the year 1923, 98,383 pikuls were exported as smelted tin and 534,134 pikuls as tin-in-ore; in comparison with 98,852 pikuls and 493,954 pikuls in 1922, respectively, showing a decrease in smelted tin of 468 pikuls and an increase of tin-in-ore of 40,179 pikuls.

(ii) The export, as recorded by the Customs from each State, of metallic tin plus 72 per cent. of ore and its approximate value, at the local average prices for 1922 and 1923, viz., \$80.64 per pikul, and \$101.75 per pikul, respectively, was as follows (as before, it should be noted that these average prices are not true volumetric means):

State.	1922.	1922 value.	1923.	1923 value.	Pikuls.	Value.
					Increase + Decrease—	Increase + Decrease—
	Pikuls.	\$	Pikuls.	\$		\$
Perak ... ..	366,176	29,528,461	415,157	42,242,224	+ 48,981	+ 12,713,763
Selangor ... ..	191,734	15,461,396	184,728	18,796,074	— 7,006	+ 3,334,678
Negri Sembilan ... ..	15	1,216	9	916	— 6	— 300
Pahang ... ..	34,881	2,812,803	32,623	3,319,390	— 2,258	+ 506,587
Total ...	592,806	47,803,876	632,517	64,358,604	+ 39,711	+ 16,554,728

Reduced to tons (2,240 lbs.) the export for 1922 was 35,286 tons and for 1923 was 37,649 tons showing an increase of 2,363 tons.

(iii) The figures in the foregoing table show the actual exports—ex Federated Malay States—from each State; the following table is corrected for inter-State trade and shows the export of production in each State for the last three years:

State.						1921.	1922.	1923.	1923 on 1922.
						Pikuls.	Pikuls.	Pikuls.	Pikuls.
Perak ... ..	...	...	...	...	...	353,486	367,051	416,174	+49,123
Selangor ... ..	...	...	...	...	...	155,267	155,756	148,713	— 7,043
Negri Sembilan ... ..	...	...	...	...	...	14,289	16,116	18,016	+ 1,900
Pahang ... ..	...	...	...	...	...	56,391	53,883	49,614	— 4,269
Total ...	...	...	...	...	...	579,433	592,806	632,517	+39,711

Perak shows an increase of 13.4 per cent., Selangor a decrease of 4.5 per cent., Negri Sembilan an increase of 11.8 per cent., and Pahang a decrease of 7.9 per cent.; the increase on the total production being 6.7 per cent. as compared with 1922.

## LOCAL MARKET.

9. (i) The year opened with the price at \$91.75, on the 19th of March the price stood at \$118.62½; it declined from then onwards until the lowest price for the year was reached, viz., \$88.50 on the 5th of July; a steady improvement then set in, the price rising to \$121 on the 3rd of December, the highest price for the year. At the close of the year the price was \$116.87½. The fluctuation for the year under review was \$32.50.

(ii) The highest price for 1923 was \$27.38 above that for the previous year and the lowest price touched was \$16.75 above the corresponding figure for 1922.

The following table gives figures for the last seven years in dollars per pikul:

Heading.	1917.	1918.	1919.	1920.	1921.	1922.	1923.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Highest ... ..	140 00	182 50	166 00	212 00	*115 00	93 62	121 00
Average ... ..	108 74	150 62	120 68	150 67	85 04	80 64	101 75
Lowest ... ..	85 00	117 50	100 00	90 00	72 00	71 75	88 50
Fluctuation ... ..	55 00	65 00	66 00	122 00	43 00	21 87	32 50

\* Government purchase price.



The highest price was reached on December 3rd and the lowest on the 5th July, the corresponding dates for the previous year were November 8th and March 2nd.

(iii) The following figures (\$ per pikul tin-ore) in connection with the local market, which must be treated as approximations, are of interest:

Year.	Ore price.	Received by miners.	Difference.	Duty.	Balance.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1917 ... ..	78 29	61 30	16 99	* 12 56	4 43
1918 ... ..	108 45	85 32	23 13	* 18 45	4 68
1919 ... ..	86 89	71 40	15 49	12 00	3 49
1920 ... ..	108 48	89 00	19 48	15 60	3 88
1921 ... ..	61 20	49 72	11 48	7 68	3 80
1922 ... ..	58 05	47 11	10 94	7 20	3 74
1923 ... ..	73 26	59 10	14 16	9 72	4 44

The figures under "Balance" represent approximately the average deduction made on account of smelting and local costs.

(iv) The following table shows the average London three months quotation in comparison with the average Straits price, in sterling, per ton (2,240 lbs.), for the last eight years:

Year.	London.	Straits.	Difference.	Remarks.
	£ s. d.	£ s. d.	£ s. d.	
1916 ...	182 3 5	171 11 2	10 12 3	Control April to December
1917 ...	237 11 6	213 2 7	24 8 11	
1918 ...	327 12 10	295 4 4	32 8 6	
1919 ...	254 14 6	238 9 10	16 4 8	
1920 ...	297 5 11	295 6 3	1 19 8	
1921 ...	168 0 0	166 13 4	1 6 8	
1922 ...	160 14 0	158 1 0	2 13 0	
1923 ...	202 15 4	199 8 7	3 6 9	

#### LONDON MARKET.

10. (i) The highest three months price for the year was £240.17s.6d. per ton and the lowest £177.5s.0d. per ton, the average price being £202.15s.4d.

The beginning of the year was marked by a sharp rise, from £185.15s. on January 3rd to £234.10s. on March 14th; thereafter an equally rapid drop in the price occurred and by July 4th the price had receded to £177.5s. A fluctuating upward movement then set in culminating in the highest price for the year being reached, viz., £240.17s.6d. on December 14th. The year closed with the price standing at £235.5s.

The cause of the rise at the beginning of the year was heavy American buying and a remarkable activity in the tin plate trade both in England and America. The rise was further assisted by the speculative element. The subsequent drop in the price has been attributed to various factors chief amongst which were a temporary cessation of American buying due to overbuying by American consumers in the Spring and the announcement of the proposed liquidation of the Bandoeng Agreement Stocks.

The recovery after the drop was due to a sustained good demand from consumers and the ability of the market to absorb stocks released from the Pool, together with the favourable statistical position.

(ii) The feature of the year was the improved world's consumption. It is estimated that consumption exceeded production by at least 10,000 tons. The visible supplies decreased by 4,000 tons during the year—from 22,598 on January 31st to 18,600 on December 31st.

(iii) Given a continuation during the present year of the rate of consumption maintained in 1923, the price should continue to improve. The key to the position however lies in the maintenance of the present trade prosperity in America. Any setback, due to labour troubles or other causes, will be bound to have a severe adverse effect on the tin price.

\* Includes War-tax.



## PART III.

## OTHER MINING.

## TUNGSTEN ORES.

11. (i) The total export of tungsten ores of Federated Malay States origin as shown by the Customs returns was 631 pikuls (37 tons) as compared with 1,597 pikuls (95 tons) in 1922.

(ii) The export of wolfram of Federated Malay States origin as tabulated from Customs returns was as follows for the last three years:

State.							1921.	1922.	1923.
							Pikuls.	Pikuls.	Pikuls.
Perak	...	...	...	...	...	...	...	...	...
Selangor	...	...	...	...	...	...	924	934	...
Negri Sembilan	...	...	...	...	...	...	...	657	631
Pahang	...	...	...	...	...	...	...	...	...
Total							924	1,591	631

(iii) The export of scheelite of Federated Malay States origin as shown by Customs returns was as follows:

State.							1921.	1922.	1923.
							Pikuls.	Pikuls.	Pikuls.
Perak	...	...	...	...	...	...	...	6	...
Selangor	...	...	...	...	...	...	...	...	...
Negri Sembilan	...	...	...	...	...	...	...	...	...
Pahang	...	...	...	...	...	...	...	...	...
Total							...	6	...

(iv) The production of tungsten ores in each State, after correcting export figures for inter-State trade, was, as nearly as can be ascertained, as follows:

State.							1921.	1922.	1923.
							Pikuls.	Pikuls.	Pikuls.
Perak	...	...	...	...	...	...	274	6	...
Selangor	...	...	...	...	...	...	63	853	...
Negri Sembilan	...	...	...	...	...	...	587	738	668
Pahang	...	...	...	...	...	...	...	...	...
Total							924	1,597	668

The year under review shows a decrease in production of 929 pikuls (55 tons). The export duty on tungsten ores was still in abeyance.

(v) Tungsten-bearing ore from other countries, sent to the Federated Malay States for treatment, resulted in a re-export of 524 pikuls of clean ore as compared with 863 pikuls in 1922.

## GOLD.

12. (i) The quantity of gold placed upon the market was as follows for the years noted:

State.							1921.	1922.	1923.
							Ozs.	Ozs.	Ozs.
Perak	...	...	...	...	...	...	1,438	1,143	883
Negri Sembilan	...	...	...	...	...	...	...	81	83
Pahang	...	...	...	...	...	...	13,236	13,781	8,601
Total							14,674	15,005	9,567

For the year under review the Raub Mine produced 8,161.55 ounces.



## COAL.

13. (i) The output from the Malayan Collieries, Limited (Selangor), for the last four years was as follows:

1920	...	...	...	...	...	...	...	247,917 tons
1921	...	...	...	...	...	...	...	299,351 "
1922	...	...	...	...	...	...	...	281,828 "
1923	...	...	...	...	...	...	...	317,892 "

an increase of 36,064 tons on the preceding year, making a total of 1,775,670 tons since production commenced.

(ii) Coal for the year was consumed as follows:

Federated Malay States Railways	...	...	176,138 tons
Mines	...	...	100,846 "
Other Federated Malay States Consumers	...	...	6,493 "
Exported	...	...	15,856 "
Total	...	...	299,333 "

In addition 18,559 tons were consumed at the Collieries.

(iii) The power of the plant was 1,738 horse-power.

(iv) *Mine Development*.—Underground development was confined principally to the east mine (lower seam) where 4,117 feet of driving and 1,600 feet of cross cutting were completed. Development revealed the existence of quite a number of faults in the seam, but the displacement did not in any place exceed 10 feet.

(v) *Underground Fires*.—No serious fires, due to spontaneous combustion, occurred, and the minor fires were promptly dealt with before any damage had been done.

(vi) *Hydraulic Stowage*.—Over the whole year an average of 14,000 cubic yards of sand per month were stowed underground, and the various operations connected with the work ran without a hitch. A new sand bunker with a capacity of 500 cubic yards has been prepared, but has not yet been put into commission.

(vii) *Ventilation*.—Adequate ventilation for all places underground has now been provided. At the east mine a new ventilation shaft, 15 feet diameter, in the clear, and 100 feet deep, and bricklined throughout, was completed, and put into use during the period under review.

(viii) *Opencasts*.—Work here proceeded without interruption, and stripping has been kept well in advance of coal winning.

(ix) *Surface (General)*.—To facilitate traffic generally and to separate the coal and sand traffic as far as possible, it was decided to construct a new railway siding. The earthwork which included a cutting half a mile long with a maximum depth of 25 feet, is complete, and the rails are about to be laid.

(x) *Kundang Sand Pits*.—Ample supplies of sand have been forthcoming from here, and the slimes dam which was put into commission during the latter part of last year has effectually dealt with the slime settlement problem.

(xi) *Labour employed*.—The average number of coolies employed during the year was approximately 1,900 at Batu Arang and 100 at Kundang.

(xii) *Health and Accidents*.—The health of the staff and coolies has again been remarkably good. There were no fatal nor serious accidents to workmen, and minor accidents were rare.

## QUARRIES.

14. The tonnage of stone quarried by the Public Works Department, mainly for use on roads, was as follows:

State.							1921.	1922.	1923.
							Tons.	Tons.	Tons.
Perak	...	...	...	...	...	...	158,893	95,744	114,299
Selangor	...	...	...	...	...	...	154,098	161,635	166,495
Negri Sembilan	...	...	...	...	...	...	71,952	60,657	66,102
Pahang	...	...	...	...	...	...	40,809	50,302	32,000
Total						...	425,752	368,338	378,896

As in former years stone was also quarried for railway purposes.



## CEMENT MANUFACTURE.

15. The Batu Caves Cement Works (Selangor) operations were as follows, in tons, for the last three years:

Year.							Limestone.	Cement manufactured.	
1921	...	...	...	...	...	...	6,048	...	1,768
1922	...	...	...	...	...	...	1,470	...	490
1923	...	...	...	...	...	...	—	...	1,173

all of which for the year under review was used locally and shows an increase of production of 683 tons as compared with 1922.

## PART IV.

## LABOUR, MACHINERY AND TIN MINING LANDS.

## LABOUR.

16. (i) The labour force employed on mining at the end of the year under review (inclusive of individual licences but exclusive of holders of dulang passes) was 96,662, all of whom, with the exception of 416 on gold and 1,900 on coal, were employed on tin and tungsten mining. These figures do not include labour employed on extraction and transport of firewood.

(ii) The labour force in each State in December was as follows for the last three years:

State.							1921.	1922.	1923.
Perak	...	...	...	...	...	...	47,117	45,726	61,655
Selangor	...	...	...	...	...	...	28,615	27,226	25,946
Negri Sembilan	...	...	...	...	...	...	2,734	2,546	2,450
Pahang	...	...	...	...	...	...	7,873	6,697	6,611
Total							86,339	82,195	96,662

showing an increase of 14,467 men as compared with 1922, equivalent to 17.51 per cent.

## DULANG PASS HOLDERS.

(iii) Dulang passes were issued in each State for the last three years as shown in the following table:

State.							1921.	1922.	1923.
Perak	...	...	...	...	...	...	8,070	7,308	4,565
Selangor	...	...	...	...	...	...	4,117	4,247	2,652
Negri Sembilan	...	...	...	...	...	...	539	536	281
Pahang	...	...	...	...	...	...	692	662	396
Total							13,418	12,753	7,894

showing a decrease of 4,858 as compared with 1922. The nationalities for the year under review were: Malays 356; Chinese 7,265; Indians 272; Sakais or others 1. Dulang pass holders earned on an average \$233 per head, an increase of \$27 per head as compared with 1922. The reason for the decrease was in part the fee of one dollar which is now charged.

## METHOD OF EMPLOYMENT OF LABOUR.

(iv) The method of employment for 1923 and the preceding year was as follows:

State.	1922.				1923.			
	Open-cast and surface.	Under- ground.	Hydraulic and lampan.	Bucket dredging.	Open-cast and surface.	Under- ground.	Hydraulic and lampan.	Bucket dredging.
Perak	13,575	2,150	25,861	4,140	13,360	5,516	38,409	4,370
Selangor	20,104	2,962	3,527	633	17,758	2,613	4,711	864
Negri Sembilan	1,328	651	322	245	1,222	636	356	236
Pahang	1,538	2,751	2,237	171	1,684	2,866	1,925	136
Total	36,545	8,514	31,947	5,189	34,024	11,631	45,401	5,606



## CLASSIFICATION OF LABOUR.

(v) The following table shows the classification of labour :

State.	Contract.	Wages.	Tribute.	Individual licensees.
Perak ... ..	9,509	25,872	26,274	...
Selangor ... ..	11,425	7,403	7,118	...
Negri Sembilan ... ..	403	410	1,268	369
Pahang ... ..	1,803	2,132	2,605	71
Total, 1923 ...	23,140	35,817	37,265	440
„ 1922 ...	21,003	29,966	30,813	413
„ 1921 ...	18,071	30,314	37,378	576

The increase on contract labour was 10.13 per cent., wages 19.52 per cent., tribute 20.94 per cent. and individual licensees 6.54 per cent.

## NATIONALITY OF LABOUR.

(vi) The nationality of those employed was as follows :

State.	European.	Chinese.	Indian.	Malays.	Others.
Perak ... ..	183	56,210	4,052	1,093	117
Selangor ... ..	56	24,588	924	178	200
Negri Sembilan ... ..	14	2,391	33	12	...
Pahang ... ..	50	5,871	255	388	47
Total, 1923 ...	303	89,060	5,264	1,671	364
„ 1922 ...	297	76,449	3,678	1,563	208
„ 1921 ...	327	80,110	3,525	2,307	70

The increase in Europeans was 2.02 per cent.; in Chinese 16.49 per cent.; in Indians 43.12 per cent.; in Malays 6.9 per cent. and others 73.07 per cent.

## CHINESE IMMIGRATION AND EMIGRATION.

17. (i) The following return shows the number of Chinese adult male immigrants and emigrants entering and leaving the States *via* ports for the years 1921, 1922 and 1923 :

State.	1921.		1922.		1923.	
	Immigrants.	Emigrants.	Immigrants.	Emigrants.	Immigrants.	Emigrants.
Perak ... ..	3,699	2,916	4,664	3,410	5,025	3,320
Selangor ... ..	6,881	8,678	6,597	8,698	7,659	9,539
Negri Sembilan ... ..	496	884	486	368	518	201
Pahang ... ..	2,322	1,696	1,907	1,770	1,497	881
Total ...	13,398	14,174	13,454	14,246	14,699	13,941

showing an excess of immigrants in 1923 of 1,245 over emigrants, the number of the latter being 305 less than that in 1922.

## MACHINERY AND HYDRAULIC APPLIANCES ON MINES.

18. The total effective horse-power of steam, gas, oil, hydraulic and electrical plant employed on mines in the year under review is estimated at 73,300 (including Raub Mine and Colliery) and is classed as follows :

State.	Steam.	Steam-electric.	Hydraulic.	Hydro-electric.	Suction-gas.	Oil-engines.	Oil-electric.	Total, 1923.	Total, 1922.
Perak ... ..	19,165	5,020	20,243½	...	860	1,950	2,730	49,968½	40,986½
Selangor ... ..	10,733	450	635	...	752	686½	800	14,056½	8,692½
Negri Sembilan ... ..	1,073	...	581	...	100	...	...	1,754	1,460
Pahang ... ..	3,841	...	609	1,756(a)	120	195	1,000	7,521	8,139½
Total, 1923 ...	34,812	5,470	22,068½	1,756	1,832	2,831½	4,530	73,300	59,278½
„ 1922 ...	29,612	2,748½	16,281	4,855	1,689	1,493	2,600	59,278½	...
„ 1921 ...	28,642	2,239	17,464	4,546	1,056	1,245	4,000	59,200	...

NOTE.—(a) The Tin Bentong No Liability's plant develops 1,070 horse-power of which 500 horse-power has been credited to the company in the above analysis as maximum dredging load.



## TIN MINING LANDS.

19. The total acreage alienated for tin mining, exclusive of unsurveyed concessions, was as follows for the years 1921, 1922 and 1923 :

State.	1921.	1922.	1923.
Perak ... ..	122,432	104,482	101,984
Selangor ... ..	61,657	81,099	58,920
Negri Sembilan ... ..	13,654	13,024	8,421
Pahang ... ..	21,696	17,956	25,279
Total ... ..	219,439	216,561	194,604

a decrease of 21,957 acres as compared with 1922.

## PART V.

## GENERAL REMARKS ON MINING OPERATIONS.

## WEATHER AND ITS EFFECT ON MINING.

20. The weather on the whole was normal with no extremes of drought or flood.

## TIMBER AND FUEL SUPPLY.

21. (i) The consumption on mines was recorded as follows in tons but the figures cannot be regarded as reliable :

State.	Coal.	Oil.	Wood.
Perak ... ..	74,300	2,735	525,200
Selangor ... ..	71,245	839	160,275
Negri Sembilan ... ..	—	—	48,978
Pahang ... ..	—	902	56,562
Total, 1923 ... ..	146,545	4,576	791,015
„ 1922 ... ..	103,916	2,640	701,137
„ 1921 ... ..	105,724	2,577	717,183

an increase of 42,629 tons of coal, 1,936 tons of oil and 89,878 tons of wood as compared with 1922.

(ii) The price was slightly less than in 1922, the average price being \$5.20 a ton, with \$6.50 and \$3.10 as the highest and lowest. There is no doubt that wood fuel supplies are getting more difficult to obtain, and the remedy lies in central electric power stations burning coal economically.

(iii) The price of foreign coal dropped still more, the average prices per ton obtaining for Cardiff, Australian, Japanese and Natal coals, being \$22, \$19.50, \$17.65, and \$16, respectively.

## PROSPECTING.

22. (i) Areas covered by prospecting licences and areas selected were as follows :

State.	No. of licences.	Area under licences.	Area selected.
Perak ... ..	29	13,287	1,015
Selangor ... ..	2	960	—
Negri Sembilan ... ..	5	2,621	—
Pahang ... ..	17	37,795	610
Total, 1923 ... ..	53	54,663	1,625
„ 1922 ... ..	34	42,142	458
„ 1921 ... ..	66	117,230	3,095

showing an increase in all cases.

(ii) Increased activity was shown in searching for areas suitable for dredging and the possibilities are increasing as the methods employed improve and costs are reduced.



## MINING LANDS.

23. (i) According to the Land Office returns the following acreages of mining land were converted to agriculture :

	Acres.								
Perak ... ..	...	...	...	...	...	...	...	...	—
Selangor ... ..	...	...	...	...	...	...	...	...	31
Negri Sembilan ... ..	...	...	...	...	...	...	...	...	—
Pahang ... ..	...	...	...	...	...	...	...	...	10
Total, 1923 ...									41
„ 1922 ...									4
„ 1921 ...									6

showing an increase of 37 acres for the year under review as compared with the previous year.

(ii) Acreage of agricultural land converted to mining, similarly ascertained, was as follows :

	Acres.								
Perak ... ..	...	...	...	...	...	...	...	...	293
Selangor ... ..	...	...	...	...	...	...	...	...	120
Negri Sembilan ... ..	...	...	...	...	...	...	...	...	—
Pahang ... ..	...	...	...	...	...	...	...	...	—
Total, 1923 ...									413
„ 1922 ...									723
„ 1921 ...									283

showing a decrease of 310 acres as compared with 1922.

## ACCIDENTS.

24. (i) The total number of deaths due to accidents was as follows for the years 1921, 1922 and 1923 :

State.	1921.				1922.				1923.
Perak ... ..	...	...	...	...	35	...	45	...	44
Selangor ... ..	...	...	...	...	40	...	56	...	35
Negri Sembilan ... ..	...	...	...	...	6	...	5	...	3
Pahang ... ..	...	...	...	...	11	...	14	...	6
Total ...				92	...	120	...	...	88

The gross death-rate for the year under review on a labour force of 96,662 works out as .91 per thousand as against 1.46 in 1922.

(ii) The analysis of fatal accidents is :

## MISCELLANEOUS.

Nature.	Perak.	Selangor.	Negri Sembilan.	Pahang.
Electrical ... ..	—	—	—	—
Auxiliary operations ... ..	2	—	—	—
Surface ... ..	—	11	—	—
Shallow workings ... ..	—	—	3	4
Cliff workings ... ..	1	—	—	—
Bucket dredges ... ..	1	—	—	—
Other causes ... ..	—	—	—	—
Total ...	4	11	3	4

## DEEP OPEN-CASTS.

Nature.	Perak.	Selangor.	Negri Sembilan.	Pahang.
Falls of earth or rock ... ..	29	16	—	—
Rushes of water or mud ... ..	—	1	—	—
Other causes ... ..	6	3	—	—
Total ...	35	20	—	—



## UNDERGROUND.

Nature.	Perak.	Selangor.	Negri Sembilan.	Pahang.
Falls of earth, rock or timber ...	3	1	—	2
Rushes of water or mud ...	1	—	—	—
Foul air or gas explosions ...	—	—	—	—
Falling down shafts ...	1	3	—	—
Blasting ...	—	—	—	—
Other causes ...	—	—	—	—
Total ...	5	4	—	2

The death-rate per thousand among the underground miners is estimated at .946, as against 2.35 in 1922 and .6 in 1921.

## LABOUR SUPPLY.

25. The labour supply was sufficient for most of the year, though latterly owing to the increased activity borne of the high price of tin the demand exceeded the supply. The number of women employed in "dulang" washing decreased from 12,753 to 7,894. This was partly caused by the \$1 fee imposed and partly through the preference now shown by these women for work on mines and estates on wages or contract.

## PLANT.

26. Machinery of all kinds was obtainable at a very reasonable figure and conditions may be said to have become stabilised. The use of bucket dredges increased and much keenness was evinced over the possibilities of the use of the suction cutter, several of which type of dredge are on order for the Federated Malay States. The suction cutter which sank in Selangor was salvaged and is in course of reconstruction now on very much improved lines. The method of treating dredged ground by classifiers and jigs instead of sluices which was started in 1922 was brought to a satisfactory completion and has proved most successful in treating ground that does not contain an abnormal proportion of clay, which is the main source of trouble in all dredging operations. This method permits of a higher recovery of tin-ore and what is equally important considerably increases the capacity of the dredge, which means that for an equal cost there is an increased return.

There was an increased demand from the Chinese miners for electric power to operate their pumps and other machinery. This is a good sign and will tend to reduce the present excessive consumption of firewood and also the running costs.

An interesting use of rubber is being tried in Taiping for lining sluices carrying sands, more especially the final tail races. Hitherto, manganese steel and other hard and heavy material has been used which wears quickly and tends to upset the level of the dredge by its weight. Crepe rubber on the other hand is much lighter and cheaper and as far as the tests have now gone has an equally long if not longer life than steel. If this is finally proved, the use of crepe rubber will without doubt extend to many other parts of mining machinery subject to the wearing action of sand.

## BUCKET DREDGING.

27. At the end of the year there were 40 dredges in operation and 3 under construction as compared with 33 and 9 in the previous year.

The following table gives more details:

State.	Number working all the year.	Number working part of the year.	Number working at end of year.	Number under construction.
Perak ...	27	5	32	2
Selangor ...	3	4	5	1
Negri Sembilan ...	2	...	2	...
Pahang ...	1	...	1	...
Total, 1923 ...	33	9	40	3
„ 1922 ...	22	17	33	9

The number of new dredges proposed to be built in the future is roughly, as far as is known at present, four.



During the year one dredge was dismantled and re-erected.

The investigation by the department into losses of tin-ore from dredges was very instructive and the mining community as a whole was greatly interested. The results are now being discussed.

#### TAILINGS.

28. *Perak*.—Tailings control has been satisfactory during the year. The use of masonry spillways increased considerably. The congested condition of the tailings dump from the Intan Mines led to a concession being granted to pass away all matter of less than 120 mesh with restrictions much below the normal 800 grain rule for matter larger than 120 mesh. The result has been carefully watched and the Perak river sampled at Kuala Kangsar systematically. The result so far is that the river during normal weather carries between 1 and 3 grains per gallon but that during the wet period between March and April and in November the contents rise to as much as 12 grains per gallon. Sections of the Perak river at Kuala Kangsar are also taken and show no untoward change. Similar concessions have been granted to Gopeng Consolidated, Tekka, Limited, and Lahat Mines.

The Tekka, Limited, spillway was completed satisfactorily and a new tailings area is now in course of construction. The big dumps of Gopeng Consolidated have been maintained in good order and experiments initiated on them for syphoning slimes out of the dumps to reclaim swamps and covering waste ground.

*Selangor*.—The Peretak tailings scheme was carried on throughout the year. So far it cannot be called an unqualified success. The intake was found to be inadequate so that the ideal of having the whole river passing through the compartment was not obtainable as frequently as desirable. The outlet gate gave a lot of trouble from scour. These two faults have been remedied by the construction of another inlet and a new outlet spillway. It will always be difficult to induce the river into the compartment as its natural line is on the other or left bank. The scour from Ulu Kanching has practically ceased and conditions have become stabilised.

*Negri Sembilan*.—Tailings control was satisfactory throughout the State.

The Gapau dam was completed and has since been raised and a new 100 ft. spillway constructed.

*Pahang*.—Progress on the works on the Perting river has been very slow.

Mr. J. A. Russell's workings in Ulu Kenong were stopped as he did not build a dam; considering Government's requirements would cost more than the profits from mining.

Elsewhere conditions were fairly satisfactory but in a country such as Ulu Pahang where all the mining is in the hills adequate tailings control is a difficult and expensive matter.

#### GENERAL.

The control of tailings generally was good. The experiment of sending more slimes into the rivers and so relieving the congestion in the dumps was continued and the effect noted.

These mines having concessions to send away more than 800 grains per gallon of slimes found however that there were difficulties in so doing without overreaching the limit of sands output.

The fertilisation of slimed areas was continued under the Agricultural Department and the outlook appears promising though nothing definite can be said for another year or two.

At the moment work is being concentrated on the flat country, and the hills are being reserved for mining later, as far as is possible, so that when the flat areas are eventually worked out they can be used as dumps on a large scale.

#### PART VI.

### MINERAL ORES, NON-FERROUS METAL INDUSTRY AND DANGEROUS TRADES ENACTMENTS.

#### MINERAL ORES ENACTMENT.

#### LICENCES.

29. (i) The number of ore buyers' licences issued in 1921, 1922 and 1923, was as follows:

State.	1921.	1922.	1923.
Perak ... ..	138	125	112
Selangor ... ..	87	68	61
Negri Sembilan ... ..	16	12	12
Pahang ... ..	20	14	12
Total ... ..	261	219	197

being a decrease of 22.



## SUB-LICENCES.

(ii) The number of sub-licences issued was :

State.	1921.	1922.	1923.
Perak ... ..	187	169	151
Selangor ... ..	53	41	29
Negri Sembilan ... ..	11	10	10
Pahang ... ..	31	21	17
Total ...	282	241	207

showing a decrease of 34 as compared with the previous year.

## REVENUE COLLECTED.

(iii) Fees were collected as follows :

State.	1921.	1922.	1923.
Perak ... ..	\$13,893	\$12,584	\$11,298
Selangor ... ..	8,726	6,820	6,132
Negri Sembilan ... ..	1,605	1,205	1,205
Pahang ... ..	2,015	1,410	1,213
Total ...	\$26,239	\$22,019	\$19,848

showing a decrease of \$2,171 as compared with the previous year, the reason being decrease in number of licences issued.

## COST OF STAFF.

(iv) The cost of the staff employed under the Mineral Ores Enactment was \$18,614 as compared with \$21,632 in 1922.

## PROSECUTIONS.

(v) Eleven prosecutions under the Enactment were undertaken during the year, six in Perak, and five in Selangor. Convictions were obtained in ten cases and fines to the amount of \$1,970 were inflicted of which \$710 were paid. In one case in Selangor the accused died whilst awaiting trial.

## INSPECTIONS.

(vi) Inspections of all licensed premises and licensees' accounts were made by the Inspector, as far as possible, once in three months. The six Sub-Inspectors visited all licensed premises in their various districts once a month for the purpose of obtaining copies of the licensees' ore-buying transactions during the previous month.

## ORE-BUYING BUSINESS.

(vii) The following table gives an idea of the ore-buying business in the Federated Malay States and, as in former years, two large European companies operated smelting works in the Colony :

State.	Places licensed.	Smelting houses.	Men smelting.	Men buying and dressing.	Total men.	Roasting furnaces.	Smelting furnaces.	Lan-chutes.	Foot stamps.
Perak... ..	95	3	81	613	694	4	11	130	50
Selangor ... ..	55	4	90	218	308	1	17	52	28
Negri Sembilan ... ..	11	...	...	44	44	...	...	...	...
Pahang ... ..	9	...	...	33	33	...	...	...	...
Total, 1923 ...	170	7	171	908	1,079	5	28	182	78
„ 1922 ...	189	6	146	841	989	5	28	178	77
„ 1921 ...	196	5	216	947	1,163	2	26	198	86

Not included in the above are the licences issued to European companies which were as follows :

Perak, 13; Selangor, 5; Negri Sembilan, 1. Therefore the table represents the ore-buying business under other than European management.



## STAFF.

(viii) Mr. J. Lovett continued to carry out the duties of Inspector under the Mineral Ores Enactment during the year—the staff now consists of one European Inspector, six Chinese Sub-Inspectors and two clerks, one acting as Sub-Inspector in Pahang.

## NON-FERROUS METAL INDUSTRY ENACTMENT.

30. This Enactment was brought into force during 1919. The number of licences issued and the fees collected during the years 1921, 1922 and 1923, were as follows:

Year.							Number of licences issued.	Fees collected. \$
1921	...	...	...	...	...	...	18	180
1922	...	...	...	...	...	...	19	190
1923	...	...	...	...	...	...	23	230

The total number of licences issued under this Enactment since its inception in 1919 to the end of 1923 was 382 and the fees collected was \$3,820.

## PART VII.

## THE MACHINERY ENACTMENT.

## PLANT UNDER INSPECTION.

31. (i) The total horse-power of plant installed and registered under the Machinery Enactment was  $145,415\frac{1}{2}$  (inclusive of hydro-turbines aggregating to 3,667 horse-power), of which  $90,252\frac{3}{4}$  horse-power was in operation as against  $141,694\frac{3}{4}$  horse-power registered in 1922 and  $80,744\frac{1}{4}$  horse-power in operation that year, showing for the year under review an increase of applied energy of  $9,508\frac{1}{2}$  horse-power.

## DISTRIBUTION OF STEAM BOILERS.

(ii) Two thousand and ninety-two boilers were registered with a collective horse-power of 94,871 and were distributed as follows:

State.							Number.	Collective horse-power.
Perak	...	...	...	...	...	...	1,028	52,739
Selangor	...	...	...	...	...	...	703	31,188
Negri Sembilan	...	...	...	...	...	...	219	5,509
Pahang	...	...	...	...	...	...	142	5,435
Total, 1923							2,092	94,871
,, 1922							2,089	92,748
,, 1921							2,073	90,291

an increase of three boilers with 2,123 horse-power as compared with 1922.

## EMPLOYMENT OF STEAM BOILERS.

(iii) The following table shows the employment of steam boilers:

State.	Mining.		Agricultural.		General.		Government.	
	Working.	Idle.	Working.	Idle.	Working.	Idle.	Working.	Idle.
Perak	387	429	16	37	37	39	56	27
Selangor	200	396	7	11	14	11	63	1
Negri Sembilan	19	142	7	12	34	4	...	1
Pahang	38	50	7	3	2	2	38	2
Total, 1923	644	1,017	37	63	87	56	157	31
,, 1922	553	1,105	38	68	104	70	118	33
,, 1921	630	1,036	41	57	44	45	179	41

The horse-power of steam plant in employment in the year under review aggregated to 50,545 and that of unemployed to 44,326, figures for the previous year being 44,146 and 48,602, respectively.



## OIL AND GAS ENGINES.

(iv) One thousand and ninety-five oil engines with an aggregate horse-power of 29,467 $\frac{1}{2}$  and 317 gas engines with a total horse-power of 17,410 were registered and were distributed as follows :

State.	Oil.		Gas.	
	Number.	Horse-power.	Number.	Horse-power.
Perak ... ..	595	14,676	136	7,747
Selangor ... ..	325	9,344	129	6,822
Negri Sembilan ... ..	144	3,693	47	2,597
Pahang ... ..	31	1,544 $\frac{1}{2}$	5	244
Total, 1923 ...	1,095	29,467 $\frac{1}{2}$	317	17,410
„ 1922 ...	1,061	27,929 $\frac{3}{4}$	316	17,350
„ 1921 ...	997	25,335	313	17,087

showing an increase of 34 oil engines of 1,537 $\frac{3}{4}$  horse-power and one gas engine of 60 horse-power as compared with 1922.

(v) Employment of oil and suction gas engines was as follows :

State.	Mining.		Agricultural.		General.		Government.	
	Oil.	Gas.	Oil.	Gas.	Oil.	Gas.	Oil.	Gas.
Perak ... ..	138	26	114	65	68	17	8	1
Selangor ... ..	44	16	137	94	33	7	14	...
Negri Sembilan ... ..	...	1	97	35	8	...	7	1
Pahang ... ..	10	2	8	2	4	...	1	...
Total, 1923 ...	192	45	356	196	113	24	30	2
„ 1922 ...	117	25	365	209	100	26	28	2
„ 1921 ...	164	25	356	206	106	26	23	1

The total horse-power of oil engines in employment was 22,325 $\frac{3}{4}$  and of gas engines 13,747 aggregating in 1923 to 36,072 $\frac{3}{4}$  horse-power as compared with 32,931 $\frac{1}{4}$  in 1922.

The water turbines of 3,635 horse-power were working and one of 32 horse-power was idle during the year.

## INSTALLATIONS OF MACHINERY.

(vi) Four hundred and ninety-six installations were inspected and were distributed as follows :

Perak ... ..	226
Selangor ... ..	166
Negri Sembilan ... ..	93
Pahang ... ..	11
Total, 1923 ...	496
„ 1922 ...	535
„ 1921 ...	547

showing a decrease of 39 installations as compared with 1922 and 51 in comparison with 1921.



## EXAMINATION OF ENGINEERS AND DRIVERS.

(vii) The following table shows the number of candidates who presented themselves for examination for first and second grade engineers' and engine drivers' certificates, and the results obtained:

State.	Engineer.						Engine Driver.					
	First grade.			Second grade.			First grade.			Second grade.		
	Number presented.	Passed.	Failed.	Number presented.	Passed.	Failed.	Number presented.	Passed.	Failed.	Number presented.	Passed.	Failed.
Perak ... ..	3	2	1	8	4	4	65	46	19	99	80	19
Selangor ... ..	1	1	...	4	4	...	29	25	4	81	79	2
Negri Sembilan ... ..	...	...	...	...	...	...	7	6	1	27	19	8
Pahang ... ..	...	...	...	...	...	...	...	...	...	...	...	...
Total ... ..	4	3	1	12	8	4	101	77	24	207	178	29

One second grade engineer's, eight first and ten second grade engine drivers' duplicate certificates to replace lost ones were issued during the year under review.

## ACCIDENTS.

(viii) Fifteen accidents occurred, of which one was fatal, twelve serious and two minor; as compared with a total of twenty-six and nine fatalities in 1922. For the year under report six accidents happened in connection with mining machinery, five resulting in serious injuries and one minor; and nine in connection with rubber machinery resulting in one death, seven serious, and one minor injuries.

## PART VIII.

## CONCLUSION.

32. The improvement in the tin price noted at the end of 1922 continued till March but fell away later. This increase in price is noticeable in the early months of the year and is due largely to the heavy purchases of tin then, in preparation for the canning industry later.

Towards the end of the year the price rose quickly and the conditions then prevailing were most satisfactory.

The tin held by Government was sold according to the amount released from the Bandoeng Agreement and amounted to 4,500 tons at the end of the year.

## MINING SUPPLIES.

33. There was no shortage of machinery of any kind and the cost was reduced very considerably. Bucket dredgers can now be obtained for £40,000 instead of £80,000. The United Engineers have improved their plant in Singapore and are now engaged in building two dredges for the Federated Malay States. This is very satisfactory and it is to be hoped that the results will be equally so.

## MINING COSTS.

34. A great deal more interest is now taken by all classes of miners in costs. Wages are still low but have risen lately in sympathy with the improved price of tin.

## OUTPUT OF ORE PER UNIT EMPLOYED.

35. The output of tin-ore per unit employed, excluding dulang pass holders who won 4.4 pikuls per head, and allowing eight units to one horse-power of plant employed, was .92 pikuls as compared with 1.36 in 1922 and 1.03 in 1921. Owing to the increased use of machinery of all kinds the tendency is for this figure to decrease.

## PROPORTION OF OUTPUT FROM EUROPEAN MANAGED MINES.

36. The proportion of the total output of ore from European owned or managed mines as compared with mines under Chinese management showed an increase of 6.2 per cent. over the previous year. The increase is due to the increased production from bucket dredges. The figures are as follows:

Nationality.		1921.		1922.		1923.		1913.
		%		%		%		%
European	...	39.2	...	38.1	...	44.3	...	26
Chinese	...	60.8	...	61.9	...	55.7	...	74



## OUTPUT FROM LODE MINING.

37. The proportion of the total output won from lode mining was 6 per cent. for the year under review compared with 6.8 per cent. in 1922 and 5.6 per cent. in 1921. As in former years the bulk of the output from lode mining came from one mine, *i.e.*, Pahang Consolidated.

## BUCKET DREDGES.

38. The percentage of the total output, won by bucket dredges, shows an increase of 6.8 over the previous year, the figure for 1923 being 22 per cent. representing 139,769 pikuls. This form of mining continues steadily to increase in popularity and is supplanting the wasteful methods of mining employed by the Chinese in former years. It is due to this form of mining that the rapid decrease in the output which has been noticeable since 1914 has been arrested.

## CHINA CLAY.

39. The owners of the Malayan China Clay and Pottery Company attempted to float the enterprise as a public company but failed. The work is now confined to China clay, latex cups and electric cleats.

40. The Electrical Branch of the Mines Department was transferred to the Electrical Board on 1st March, 1923, on retrenchment grounds.

## CONCLUSION.

41. The large rise in the price of tin towards the end of the year induced great activity among the miners and a number of new mines were opened. Competition by Bolivia is less severe than it was owing to the Bolivian Government imposing fresh taxation which had the effect of reducing the output. The present high price however will tend to stimulate Bolivian outputs.

Everything points to a period of prosperity in the tin industry which, unless there is a heavy slump in America, should continue for a considerable period.

SENIOR WARDEN OF MINES' OFFICE,  
Kuala Lumpur, 15th March, 1924.

G. E. GREIG, A.R.S.M.,  
*Acting Senior Warden of Mines, F.M.S.*