

**Department of Mines, India**

---

**REPORT**

OF THE

**CHIEF INSPECTOR OF MINES IN INDIA**

*UNDER THE INDIAN MINES ACT (VIII OF 1901)*

FOR THE YEAR ENDING

**31st December 1922**

BY

**D. PENMAN, B.Sc. (Hons.), M.I.M.E.,**  
*Offg. Chief Inspector of Mines in India*



CALCUTTA  
SUPERINTENDENT GOVERNMENT PRINTING, INDIA  
1923

**Agents for the Sale of Books Published by the  
Superintendent of Government Printing, India, Calcutta.**

**IN EUROPE.**

- |  |  |
|--|--|
| <p>Constable &amp; Co., 10, Orange Street, Leicester Square, London, W.C.</p> <p>Kegan Paul, Trench, Trübner &amp; Co., 65-74, Carter Lane, E.C., and 39, New Oxford Street, London, W.C.</p> <p>Bernard Quaritch, -11, Grafton Street, New Bond Street, London, W.</p> <p>P. S. King &amp; Sons, 2 &amp; 4, Great Smith Street, Westminster, London, S.W.</p> <p>H. S. King &amp; Co., 65, Cornhill, E.C., and 9, Pall Mall, London, W.</p> <p>Grindlay &amp; Co., 54, Parliament Street, London, S.W.</p> <p>Luzac &amp; Co., 46, Great Russell Street, London, W.C.</p> <p>W. Thacker &amp; Co., 2, Crood Lane, London, E.C.</p> <p>T. Fisher Unwin, Ltd., No. 1, Adelphi Terrace, London, W.C.</p> | <p>Wheldon &amp; Wesley, Ltd., 2, 3 &amp; 4, Arthur Street, New Oxford Street, London, W. C. 2.</p> <p>Messrs. East and West Ltd., 3, Victoria, St., London, S. W. 1.</p> <p>B. H. Blackwell, 50 &amp; 51, Broad Street, Oxford.</p> <p>Deighton Bell &amp; Co., Ltd., Cambridge.</p> <p>Oliver &amp; Boyd, Tweeddale Court, Edinburgh.</p> <p>E. Ponsonby, Ltd., 116, Grafton Street, Dublin.</p> <p>Earnest Leroux, 28, Rue Bonaparte, Paris.</p> <p>Martinus Nijhoff, The Hague, Holland.</p> <p>Otto Harrassowitz, Leipzig.</p> <p>Friedländer and Sohn, Berlin.</p> |
|--|--|

**IN INDIA AND CEYLON.**

- |   |  |
|---|--|
| <p>Thacker, Spink &amp; Co., Calcutta and Simla.</p> <p>Newman &amp; Co., Ltd., Calcutta.</p> <p>R. Cambay &amp; Co., Calcutta.</p> <p>S. K. Lahiri &amp; Co., Calcutta.</p> <p>B. Banerjee &amp; Co., Calcutta.</p> <p>The Indian School Supply Depot, 309, Bow Bazar Street, Calcutta, and 226, Nawabpur, Dacca.</p> <p>Butterworth &amp; Co. (India), Ltd., Calcutta.</p> <p>Rai M. C. Sancar Bahadur and Sons, 19/2A, Harrison Road, Calcutta.</p> <p>The Weldon Library, 57, Park Street, West, Calcutta.</p> <p>Standard Literature Company, Limited, Calcutta.</p> <p>Lal Chand &amp; Sons, Calcutta.</p> <p>Association Press, Calcutta.</p> <p>The International Buddhist Book Depot, 4, Chandney Chowk, 1st Lane, Calcutta.</p> <p>Higginbotham &amp; Co., Madras.</p> <p>V. Kalyanaram Iyer &amp; Co., Madras.</p> <p>G. A. Natesan &amp; Co., Madras.</p> <p>S. Murthy &amp; Co., Madras.</p> <p>Thompson &amp; Co., Madras.</p> <p>Temple &amp; Co., Madras.</p> <p>P. R. Rama Iyer &amp; Co., Madras.</p> <p>Vas &amp; Co., Madras.</p> <p>E. M. Gopalakrishna Kone, Madras.</p> <p>Thacker &amp; Co., Ltd., Bombay.</p> <p>D. B. Taraporevala, Sons &amp; Co., Bombay.</p> <p>Mrs. Radhabai Atmaram Sagoon, Bombay.</p> <p>Sunder Pandurang, Bombay.</p> <p>Gopal Narayan &amp; Co., Bombay.</p> <p>Ram Chandra Govind &amp; Son, Kalbadevi Bombay.</p> <p>Proprietor, New Kitabkhana, Poona.</p> <p>The Standard Bookstall, Karachi, Rawalpindi and Murree.</p> | <p>Mangaldas Harkisandas, Surat.</p> <p>Karsandas Narandas &amp; Sons Surat.</p> <p>A. H. Wheeler &amp; Co., Allahabad, Calcutta and Bombay.</p> <p>N. B. Mathur, Supdt., Nazir Kanun Hind Press, Allahabad.</p> <p>Muhshi Seota Ram, Managing Proprietor, Indian Army Book Depot, Jubi, Cawnpore.</p> <p>Rai Sahib M. Gulab Singh &amp; Sons, Mufid-i-Am Press, Lahore and Allahabad.</p> <p>Rama Krishna &amp; Sons, Lahore.</p> <p>Oxford Book and Stationery Co., Delhi.</p> <p>Supdt., American Baptist Mission Press, Rangoon.</p> <p>Proprietor, Rangoon Times Press, Rangoon.</p> <p>The Modern Publishing House, Ltd., 70, Sparks Street, Rangoon.</p> <p>Manager, The "Hitavada," Nagpur.</p> <p>S. C. Talukdar, Proprietor, Students &amp; Co., Cooch Behar.</p> <p>A. M. &amp; J. Ferguson, Ceylon.</p> <p>Manager, Educational Book Depôts, Nagpur and Jubbulpore.*</p> <p>Manager of the Imperial Book Depot, 63, Chandney Chawk Street, Delhi.*</p> <p>Manager, "The Agra Medical Hall and Co-operative Association, Ltd." (Successors to A. John &amp; Co., Agra.)*</p> <p>Supdt., Basel Mission Book and Tract Depository, Mangalore.*</p> <p>P. Varadachary &amp; Co., Madras.*</p> <p>Ram Dayal Agarwala, 184, Katra, Allahabad.*</p> <p>D. C. Anand &amp; Sons, Peshawar.*</p> <p>Manager, Nowal Kishore Press, Lucknow.*</p> <p>Maung Lu Gale, Proprietor, Law Book Depot, Mandalay.*</p> <p>Times of Ceylon Co., Ltd.†</p> |
|---|--|

\* Agents for the sale of Legislative Department Publications only.  
† Agents for the sale of Archaeological publications only.



	PAGE.
<b>SECTION II.—OUTPUT OF MINERALS—contd.</b>	
Gems Rubies, demand for, improved in London . . . . .	5
"    "    falling off in sales in India . . . . .	5
Gold output, decrease in . . . . .	5
"    "    compared with previous year . . . . .	5
Copper ore output, decrease in . . . . .	5
"    "    "    compared with previous year . . . . .	5
Iron ore output, decrease in . . . . .	5
Chromite ore output, decrease in . . . . .	5
"    "    "    compared with previous year . . . . .	5
Limestone output, decrease in . . . . .	5
Steatite " " " . . . . .	5
Graphite " " " . . . . .	5
Ochre " increase in . . . . .	5
Barytes " " " . . . . .	5
Slate " decrease in . . . . .	5
Magnesite " increase in . . . . .	5
Apatite " decrease in . . . . .	5
Clay " " " . . . . .	5
Fuller's earth output, increase in . . . . .	5
Bauxite output, decrease in . . . . .	5
<b>SECTION III.—ACCIDENTS—</b>	
Accident, decrease in . . . . .	6
"    compared with previous year . . . . .	6
"    "    "    average of preceding five years . . . . .	6
"    loss of lives involved, decrease on previous year . . . . .	6
"    "    "    classified . . . . .	6
"    decrease of, by falls of roof and sides . . . . .	6
"    "    "    haulage . . . . .	6
"    increase of, in shafts . . . . .	6
"    by explosion of firedamp . . . . .	6
"    "    explosives, decrease in . . . . .	6
"    "    electricity . . . . .	6
"    "    irruption of water . . . . .	7
Death-rates per thousand persons employed in India . . . . .	7
"    "    "    "    "    "    "    at coal mines only . . . . .	7
"    "    "    "    "    "    "    at all mines in India . . . . .	7
"    "    "    "    "    "    "    "    "    United Kingdom . . . . .	7
"    "    million tons of coal raised in India . . . . .	7
"    "    "    "    "    "    "    "    "    United Kingdom . . . . .	7
Number of deaths in each class of mineral worked . . . . .	7
Deaths, classified . . . . .	7
"    non-statistical . . . . .	7
Accidents commented upon . . . . .	7
<b>Explosions of firedamp—</b>	
Accident at the Bengal Iron Company, Limited's Jeetpur Coal Mine . . . . .	7, 8
"    "    "    North Western Railway's Khost (Ghuz) Coal Mine . . . . .	8, 9
"    "    "    Kalipahari Coal Company, Limited's Damra Coal Mine . . . . .	9
"    "    "    New Ghusick Coal Company's New Ghusick Coal Mine . . . . .	9, 10
"    "    "    Bengal Coal Company, Limited's Parbelia Coal Mine . . . . .	10
<b>Falls of roof—</b>	
Accident at Messrs. S. B. Raha and Sons' Godhur Coal Mine . . . . .	10, 11
"    "    the North-West Coal Company, Limited's Ena Coal Mine . . . . .	11
<b>Falls of side—</b>	
Accident at the Kinuri Coal Company, Limited's Kinuri Coal Mine . . . . .	11
"    "    "    Busserya Coal Company, Limited's Busserya Coal Mine . . . . .	12
"    "    "    Gopalchuck Coal Company, Limited's Gopalchuck Coal Mine . . . . .	12
"    "    "    Tata Iron and Steel Company, Limited's Jamadoba Coal Mine . . . . .	12

	PAGE.
<b>SECTION III.—ACCIDENTS—contd.</b>	
<b>In shafts—</b>	
<b>Overwinding—</b>	
Accident at the Bengal Coal Company, Limited's Sodepur Coal Mine . . . . .	12, 13
" " " Equitable Coal Company, Limited's Hariladih Coal Mine . . . . .	13
<b>Ropes and chains breaking—</b>	
Accident at the Tata Iron and Steel Company, Limited's Malkera Coal Mine . . . . .	13, 14
" " " Ghusick and Muslia Collieries, Limited's Ghusick Coal Mine . . . . .	14
<b>By explosives—</b>	
Accident at the Samla Govindpur Collieries, Limited's Baidyanathpur Coal Mine . . . . .	14
<b>Haulage—</b>	
Accident at the Kirkend Coal Company's Kirkend Mine . . . . .	15
<b>Electricity—</b>	
Accident at the Aldih Coal Company, Limited's Aldih Coal Mine . . . . .	15
<b>Miscellaneous on surface—</b>	
Accident at the Central Kurkend Coal Company, Limited's Central Kurkend Coal Mine . . . . .	15, 16
<b>SECTION IV.—PROSECUTIONS AND ADDITIONS TO THE ACT—</b>	
<b>Prosecutions under the Indian Mines Act—</b>	
J. Boisogomoff's Dobrana Coal Mine . . . . .	16
Patel Brothers and Company's Kalimati Coal Mine . . . . .	16
B. B. Trigunait's Khas Angarpathra Coal Mine . . . . .	16
National Coal Company's Angarpathra Coal Mine . . . . .	16
East Bagdiggi Coal Company's East Bagdiggi Coal Mine . . . . .	16
Trinoyoni Debi and others' Mangalpur (Upper Bungalow) Coal Mine . . . . .	16
J. N. Das and Company's West Baraboni Coal Mine . . . . .	16
D. Marwari's Mouthdih Coal Mine . . . . .	16
R. N. Banorji and others' Kalikapur Coal Mine . . . . .	16
R. N. Mondal and Company's New Nayadanga Coal Mine . . . . .	16
W. C. Bhattacharji's Egarcoor Coal Mine. . . . .	16
Model Brindabanpur Coal Company's Brindabanpur Model Coal Mine . . . . .	16
Nistarini Dassi's Jamohari Coal Mine . . . . .	16
Dangaich Coal Company's Tundoo Coal Mine . . . . .	16
Gopalichuck Coal Company, Limited's Gopalichuck (Head) Coal Mine . . . . .	16
Busserya Coal Company, Limited's Busserya Coal Mine . . . . .	17
Radha Gobinda Sircar's Hirakund Coal Mine . . . . .	17
Pir Mohanlal's Muraidih (Locobad) Coal Mine . . . . .	17
Abdur Sattar and Abdur Rahim Khan's Brindabanpur Coal Mine . . . . .	17
J. P. Lalla's South Baroda Coal Mine . . . . .	17
D. P. Verma and Son's Pirorgoria Coal Mine . . . . .	17
Nauren Singh's Bhutdoba Coal Mine . . . . .	17
New Moheshpur Coal Company's New Moheshpur Coal Mine . . . . .	17
P. K. Chatterjee and Brothers' Jotejanaki Coal Mine . . . . .	17
L. Newton's Newton Pench Coal Mine . . . . .	17
The owners of 24 mines for non-submission of Annual Returns for 1921 . . . . .	17
<b>Prosecutions of employees under the Special Rules—</b>	
Nistarini Dassi's Jamohari Coal Mine . . . . .	17
Burrakur Coal Company, Limited's Charanpur Coal Mine . . . . .	17
Churulia Coal Company, Limited's Churulia Coal Mine . . . . .	17
P. K. Chatterjee and Brothers' Jotejanaki Coal Mine . . . . .	17
Pench River Coal Company, Limited's Ekbehra Coal Mine . . . . .	18
Bengal Coal Company, Limited's Parbelia Coal Mine. . . . .	18
P. Mukherji and Company's New Peepratand Coal Mine . . . . .	18
D. N. Ghosh and Brother's Tetturiya Coal Mine . . . . .	18
Burrakur Coal Company, Limited's Joba Coal Mine . . . . .	18
Assam Railways and Trading Company, Limited's Ledo Valley Coal Mine . . . . .	18
SECTION 20.—Amendment of rules regarding the submission of returns . . . . .	18
SECTION 21.—Establishment of Special Rules at Coal Mines . . . . .	18
Indian Mines Act, 1923, enactment of . . . . .	18

	PAGE.
<b>SECTION V.—GENERAL REMARKS—</b>	
<b>Health and Sanitation—</b>	
<b>Asansol Mines Board of Health—</b>	
Number of meetings . . . . .	18
Epidemic diseases . . . . .	18
Anti-malarial investigations . . . . .	18
Results of investigation into existence of hook worm infection . . . . .	18, 19
Education in Elementary Hygiene continued . . . . .	19
<b>Jharia Mines Board of Health—</b>	
Number of meetings . . . . .	19
Appointment of Assistant Medical Officer of Health . . . . .	19
Publication of bye-laws under the Bihar and Orissa Mining Settlements Act, 1920 . . . . .	19
Epidemic diseases . . . . .	19
<b>Rainfall Statistics—</b>	
Jharia Water Works and Coalfields of Jharia, Giridih and Raniganj . . . . .	19
<b>Mining Education—</b>	
Report of Principal, Bengal Engineering College . . . . .	19
Annual Mining Camp " " " . . . . .	19
Mining Education Advisory Board, Meetings held by . . . . .	19
Result of sessional examination . . . . .	19
Sanction of new scheme of instruction for Bengal . . . . .	19, 20
Construction of new lecture halls in Bengal . . . . .	20
Institution of three years course of instruction in Jharia Coalfield . . . . .	20
Delivery of lectures in Bengali in Raniganj Coalfield . . . . .	20
" " " " Hindi in Jharia " . . . . .	20
<b>Board of Examiners for Coal Mine Managers' Certificates—</b>	
Change in personnel of Board . . . . .	20
Number of meetings held . . . . .	20
" " Indian certificates granted in lieu of British certificates . . . . .	20
Issue of duplicate second class certificate . . . . .	20
Results of examinations for Colliery Managers' Certificates of Competency . . . . .	20
Local Examiners and Secretaries . . . . .	20
Publication of questions set at annual examinations . . . . .	20
Revision of regulations for examinations . . . . .	20
<b>Mining Boards—</b>	
Number of meetings held . . . . .	20
Business transacted . . . . .	20
<b>Mining and Geological Institute of India—</b>	
Membership . . . . .	21
Number of meetings held . . . . .	21
" " " " in Central Provinces and Berar Branch . . . . .	21
Award of Government Prize . . . . .	21
" " Institute Medals . . . . .	21
Removal of headquarters of Institute . . . . .	21
<b>Association of Colliery Managers in India—</b>	
Affiliation to National Association of Colliery Managers in Great Britain . . . . .	21
Questions dealt with by Council . . . . .	21
<b>Land Acquisition (Mines) Act, 1885—</b>	
Number of cases disposed of . . . . .	21
Register of applicants for employment holding first or second class Colliery Managers' Certificates . . . . .	21
<b>Official duties—</b>	
Personnel . . . . .	21, 22



FROM

D. PENMAN, Esq., B.Sc. (Hons.), M.I.M.E.,  
*Offg. Chief Inspector of Mines in India.*

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,  
DEPARTMENT OF INDUSTRIES AND LABOUR, SIMLA.

*Dated Dhanbad, the 13th June 1923.*

SIR,

I have the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1922.

## INTRODUCTION.

It may be explained that this report relates entirely to the administration of the Indian Mines Act, 1901. The Act applies to British India only and not to the Indian States. Mines which are less than 20 feet deep are excluded from its scope. For the complete figures of production of all minerals raised from excavations of all depths in British India and the Indian States reference may be made to the statements of the "Mineral Production of India" published in the Records of the Geological Survey of India, and to the "Quinquennial Review of the Mineral Production of India" published every five years by the same Department. Mysore, where the Kolar goldfield is situated, and Hyderabad (Nizam's Dominions) have their own Departments of Mines. Detailed information of the mineral industries of those States is given in the annual reports of their respective Chief Inspectors of Mines.

### Section I.—Persons Employed.

During the year 1922 the daily average number of persons working in and about the mines regulated by the Indian Mines Act was 228,511, as compared with 249,663 in the previous year. This is a decrease of 21,152 persons or 8.47 per cent. Of these persons 137,017 worked underground and 91,494 on the surface.

One hundred and forty-two thousand one hundred and three were adult males, 78,806 were adult females and 7,602 were children under 12 years of age.

Those employed in coal mines numbered 184,355 which is 6,292 less than those employed in 1921.

In the Jharia and Raniganj coalfields labour on the whole was very scarce. At the beginning of the year a prolonged strike on the East Indian Railway interfered greatly with the working of the collieries and gave rise to a considerable accumulation of coal at the mines. Later on in the year a good harvest affected the labour supply to some extent. There was no general increase in wages.

There was no serious epidemic disease and the general health of the labour force in both coalfields was good.

In the Giridih coalfield during the first half of the year, political agitation affected the labour very considerably. A heavy monsoon and prolonged harvesting operations consequent on good crops reduced the labour supply in the last half of the year.

In Hazaribagh there were mild outbreaks of cholera and influenza at the Albion coal mine.



In Baluchistan the total labour force was about the same as in 1921. No female labour was employed. A considerable number of labourers is supplied by nomads from Afghanistan during their winter migrations. At the Khost mines malaria was prevalent but no cases of cholera were reported.

In the Punjab a good harvest affected the supply of labour to some extent.

At the Margherita group of collieries in Upper Assam there were during the year 1,706 recruitments and 581 repatriations. Of the new recruits 968 were Nepalese. The total labour population was 7,860 persons as compared with 7,586 persons in 1921. The adult workers totalled 4,726, as compared with 4,828 in the preceding year. The labour supply was only short during the cultivating seasons. There was no increase of wages, and there were no strikes or epidemics during the year. Influenza was, however, prevalent throughout the whole year.

In the Hazaribagh mica field labour was not plentiful. At the beginning of the year political agitation was a disturbing factor and later on a good harvest had the effect of reducing the number of workmen considerably.

In the Madras Presidency owing to the dullness of the mica market work was scarce, and for that reason labour was fairly plentiful. There were no strikes nor epidemics.

At the copper mines in the Singhbhum District there was, as heretofore, a shortage of labour of the right type. At the iron ore mines near Manharpur and at Gua the labour supply was scarce. There were no epidemics or strikes.

At Manharpur wages were increased during the year by 10 per cent. At the Bengal Iron Company, Limited's iron-ore mines at Manharpur an active anti-malarial and anti-hookworm campaign was carried on throughout the year.

Owing to a good harvest, labour was scarce in the manganese areas of the Central Provinces.

At the Bawdwin lead-silver mines the labour supply was rather better than in 1921.

## Section II.—Output of Minerals.

### COAL.

The statement given below shows the output of coal in the various provinces in British India during the years 1921 and 1922 :—

	Output in tons.	
	1922.	1921.
Assam . . . . .	347,650	312,022
Baluchistan . . . . .	40,632	42,155
Bengal . . . . .	4,328,986	4,259,642
Bihar and Orissa . . . . .	12,708,527	12,964,659
Burma . . . . .	172	300
Central Provinces . . . . .	675,841	712,914
Punjab . . . . .	67,180	67,242
TOTAL . . . . .	18,168,988	18,358,934

The total output in 1922 was 18,168,988 tons which is 189,946 tons or 1.03 per cent. less than in the previous year, when an increase in the output of 7.47 per cent. was recorded.

The opening stocks in 1922 were 2,106,866 tons and the closing stocks 2,651,554 tons.

The despatches of coal amounted to 14,543,113 tons and 2,601,073 tons were consumed on the collieries. The quantity of coal used for coking was 480,114 tons and 133,521 tons of hard coke and 188,979 tons of soft coke were made. At a large number of collieries coal is now despatched from the collieries to coke plants

elsewhere, and this coal is included under despatches. These despatches amounted to 333,752 tons in 1922. The figures for coke given in this report relate only to coke made on the collieries.

Analyses of the figures relating to the output of coal and the manufacture of coke will be found in Appendix I, Table II, on pages 34 and 35.

The decrease of output in Bihar and Orissa alone was 256,132 tons. There was also a decrease of 37,073 tons in the Central Provinces. There were increases in Bengal of 69,344 tons and in Assam of 35,628 tons. Baluchistan, Burma and the Punjab showed slight decreases. Figures of output for the two principal coal-fields are as follows :—

	Output in tons.		Percentage of decrease.
	1922.	1921	
Jharia Coalfield . . . . .	9,936,299	10,059,649	1.23
Raniganj Coalfield . . . . .	5,203,214	5,211,845	0.17

It should be remembered that although the Raniganj coalfield is chiefly in Bengal a considerable part of it is in the province of Bihar and Orissa.

A prolonged strike on the East Indian Railway caused very considerable dislocation of the coal trade at the beginning of the year in the provinces of Bihar and Orissa and Bengal. The strike was settled towards the end of April, but it was several months before conditions on the railway became normal. In November a new system of the distribution of wagons was adopted. Prices for first class coal remained steady during the year.

During the monsoon the output of coal was handicapped by the flooding of many mines, particularly in the Jharia coalfield, owing to an exceptionally heavy rainfall. Scarcity of labour during the harvesting season also adversely affected the output. Several disastrous fires due to spontaneous combustion occurred in both the Jharia and Raniganj coalfields involving stoppage of output from the areas on fire. The general adoption of hydraulic stowing in thick seams of coal would prevent fires due to spontaneous combustion, but unfortunately the extra cost involved has deterred many mine owners from employing it. At several collieries, however, situated on the banks of rivers which furnish ample supplies of sand, hydraulic stowing has been successfully employed for some time.

Most of the large collieries are now equipped with electric power. The scarcity of coal mining labour has brought about a great advance in the use of coal-cutting machinery. During 1922 there were 40 electrically-driven coal-cutting machines in the Raniganj and Jharia coalfields and these machines cut a total area of 1,065,456 square feet. In addition, three machines operated by compressed air cut 190,890 square feet in a colliery in the Jharia coalfield. At one colliery a mechanical loading conveyor operated by compressed air was employed. Statistics are given in Appendix I, Tables 6, 7 and 8 showing the amount of electric plant in the various districts and provinces of British India, and the number of electrically-driven coal-cutters at work.

The market for coal in the Central Provinces except during the period of the strike on the East Indian Railway in Bihar and Orissa and Bengal was disappointing throughout the year. During the period of the strike coal was sent from the Central Provinces to the United Provinces, Punjab and the Bombay Presidency ; but on its termination trade in the Central Provinces was again chiefly dependent on an inadequate demand from local industries and the consumers of Central India. The importation of foreign coals into Bombay at falling prices during the latter half of the year, the pre-payment of freight on all coal from the Central Provinces and the drop in prices of some of the coals of Bengal and Bihar and Orissa, together with the introduction of the rake system of wagon supplies in those provinces, formed a combination of circumstances which re-acted unfavourably on the coal trade in the Central Provinces. At the close of the year collieries were left with unsold stocks in spite of curtailed outputs.

Figures showing the output per person employed are given below :—

	TONS PER PERSON EMPLOYED.			
	Below ground.		Above and below ground.	
	1922.	1917-21.	1922.	1917-21.
British India . . . . .	169	177	98	106
Bengal and Bihar . . . . .	179	182	104	109
Assam . . . . .	147	151	96	97
Baluchistan . . . . .	56	65	32	47
Central Provinces . . . . .	83	107	51	69
Punjab . . . . .	72	66	40	40

In the United Kingdom in 1920 the output of coal per person employed below ground was 232 tons, and per person employed above and below ground 184 tons.

#### MICA.

The output was 30,089 cwt., as compared with 29,470 cwt., in 1921. There was thus an increase of 2.10 per cent.

Following the depression during the year 1921, the mica trade was at a very low ebb during the greater part of 1922. After the rains, however, a certain demand for splittings of all kinds was experienced in the Hazaribagh District.

#### MANGANESE ORE.

There was a decrease (26.64 per cent.) in the output of manganese, the figures being 392,322 tons, as compared with 534,757 tons in 1921. There was little demand for ore during the early part of the year, but from the month of May to the end of the year there was a strong demand with rising prices. The average price of manganese ore during the year was 9½d. per unit f. o. b. Bombay or Calcutta, which was a marked improvement on the average price obtained during 1921. Ocean freights ruled at 20s. per ton.

#### ROCK-SALT.

The output of rock salt was 187,157 tons, as compared with 123,084 tons in 1921, and 181,092 tons in 1920. The low output in 1921 was due to a prolonged strike at the Khewra mines from which the bulk of the output of rock-salt is obtained.

#### LEAD-SILVER ORES.

The output of lead and silver ores from the Bawdwin mines in the Northern Shan States, Burma, was 172,017 tons in 1922, as compared with 144,089 tons in 1921. The increase was, therefore, 19.38 per cent. In addition 22,435 tons of dump ore were treated. The production of refined lead was 39,214 tons, and of refined silver 4,205,584 ounces. A small quantity of silver (554 ounces) was produced as a bye-product of gold mining in Madras. The average prices obtained were Rs. 361-11-11 per ton of refined lead and Rs. 2-3-5 per standard ounce of refined silver.

#### WOLFRAM AND TIN ORES.

There was an increase in the output of wolfram for the year of 6.56 per cent. The figures were 942 tons, as compared with 884 tons in 1921. There was also a small increase (4.65 per cent.) in the output of tin ore, the figures being 1,080 tons, as compared with 1,032 tons in 1921. Not a single mine was worked for

wolfram alone during the year. In January the price of wolfram was 10s. 6d. per unit and in December 13s. 9d. nominal. The price of tin was £163 per ton early in the year and £178 per ton at the end of the year.

#### GEMS.

The output of gems increased by 15.46 per cent., the figures being 231,160 carats, as compared with 200,215 carats in 1921. The quantities of each gem mined were as follows:—

	Carats.
Rubies . . . . .	93,078
Sapphires . . . . .	102,462
Spinel . . . . .	35,620

During the year there was a marked revival in the demand for rubies in London, a good deal of it coming from New York. There was, however, practically no advance in prices. In Southern India, however, usually the largest market for the lower priced rubies, there was a considerable falling off in sales. A remarkably fine ruby of 22½ carats, having an estimated value of between £3,000 and £5,000, was found at the new Enjouk mine belonging to the Burma Ruby Mines, Limited. In this locality the royalties in license fees for the year represented 8,459 "native miners," as compared with 7,435 in 1921. Each miner pays Rs. 20 a month. The monthly average number of miners at work during 1922, therefore, was 705.

#### GOLD.

The output of gold decreased by 17.02 per cent. The quantity produced was 8,388 ounces, as compared with 10,108 ounces in 1921. At the North Anantapur mines, Madras, no development work was done, only stoping and the treatment of ore being carried on. Some development work was done at the Jibutil (Anantapur) mine. The price obtained for the gold varied from Rs. 24-14-1½ to Rs. 28-9-0 per fine tola.

#### COPPER ORE.

The output of copper ore was 30,764 tons, as compared with 32,560 tons in 1921, the decrease being 5.52 per cent. The whole of this came from a single mine in the Singhbhum District. A total of 1036 tons 19 cwt. of refined copper was obtained as against 833 tons in 1921. The average value of the copper was about Rs. 1,201 per ton, as compared with Rs. 1,150 in 1921.

#### IRON ORE.

The production of iron ore fell from 286,190 tons to 240,383 tons, a decrease of 16.01 per cent. The quantity produced at the Manharpur mines was 189,756 tons.

The figures given above do not include the iron ore used at the Jamshedpur Steel Works, supplies for which are obtained from mines in an Indian State which do not come under the operation of the Indian Mines Act nor do they include all the ore produced in British India since some of the excavations are less than 20 feet deep and therefore do not come within the scope of the Mines Act, 1901.

#### CHROMITE ORE.

The output of chromite was 19,695 tons, as compared with 27,727 tons in 1921, when the output reached a record figure. This is a decrease of 28.97 per cent. The chief producing mines are situated in Baluchistan within 50 miles of the Afghan frontier. The disturbed condition of the border has increased the difficulty of operating the mines.

#### OTHER MINERALS.

There were increases in magnesite, barytes, fuller's earth, and ochre and decreases in steatite, graphite, clay, limestone, slate, bauxite and apatite.

### Section III.—Accidents.

During the year 1922, at mines regulated by the Indian Mines Act, 1901, there were 205 fatal accidents, being a decrease of 27 on the number which occurred in 1921, and a decrease of 4 on the average number in the preceding five years.

These accidents involved the loss of 243 lives or 50 less than in 1921. Of these persons 218 were males and 25 females. In three separate accidents the number of lives lost was 13, 8 and 4 respectively. In four cases 3 lives, and in seven cases 2 lives were lost. There were in addition 292 serious accidents involving injuries to 300 persons. The subsequent remarks under this heading refer only to fatal accidents.

The causes of these accidents have been classified as follows :—

	Number of accidents.	Percentage of total number of accidents.
Misadventure . . . . .	120	58.54
Fault of deceased . . . . .	61	29.76
Fault of fellow workmen . . . . .	9	4.39
Fault of subordinate officials . . . . .	7	3.41
Fault of management . . . . .	6	2.93
Faulty material . . . . .	2	0.97
TOTAL . . . . .	205	100.00

There was an improvement in respect of accidents from falls of roof and sides. There were 109 such accidents, as compared with 136 in 1921. Many of them were due to persons working in prohibited places, and frequently the victims had deliberately broken down or passed through a fence. The exercise of more vigilance by the supervising staff would have prevented many of these accidents. In some cases the supervising staff was insufficient in number. Twenty-one fatal accidents causing the loss of twenty-six lives occurred in quarries and surface cuttings.

There were more accidents in shafts. The number was 26, as compared with 17, in the previous year. Two of these accidents were due to overwinding and one involved the loss of eight lives (see page 12). Another accident was due to the fall of a guide rope which was being fitted in a shaft and in this accident three persons were killed (see page 13).

Accidents on haulage roads were fewer. There were 20 such accidents, as compared with 30 in 1921.

There were five fatal explosions of firedamp causing twenty-one deaths. One of these occurred in a thin seam in a longwall face and caused the death of thirteen persons (see page 8). Another, which occurred in narrow gallery workings, caused the death of four persons (see page 10).

The number of accidents from explosives decreased from 14 in the previous year to 9 in 1922. Nine lives were lost. Most of these accidents were due to carelessness in the handling and use of gunpowder.

There were three accidents caused by electricity.

The Indian Electricity Rules which include a comprehensive code of rules regulating the use of electricity in mines were brought into operation on 31st July 1922. The Electric Inspector of Mines, after a close inspection of most of the electric plant in the provinces of Bengal and Bihar and Orissa, reported that many of the installations were on modern lines and required little or no alteration to bring them into compliance with the rules. In some of the older installations considerable improvements have been effected, mine owners generally being ready to comply with the new requirements.

There was one accident due to irruption of water into a mine. The accident occurred at a mine in the Jharia coalfield and one life was lost. It is becoming increasingly difficult to prevent coal mines, especially in the Jharia coalfield, from being flooded during the monsoons. The ground is everywhere broken up by subsidences and many of the entrances to mines are situated in positions which render them liable to inundation. Wherever it is practicable to do so mine owners erect protective works either on their own initiative or at the instigation of this Department and where adequate protection cannot be given all night work, and in many cases both night and day work, is stopped during the rains.

The death rate per thousand persons employed above and below ground was 1.06, while that of the preceding five years was 1.08. At coal mines only these figures were 1.13 and 1.18 and at mines other than coal 0.77 and 0.76. At all mines in the United Kingdom during the ten years ending with and including 1920 the average death rate per thousand persons employed underground was 1.36 as compared with 1.46 for all Indian mines.

The death rate per million tons raised at coal mines was 11.50 while that of the preceding five years was 11.12. At coal mines in the United Kingdom during the ten years ending with and including 1919 the death rate per million tons raised was 5.13.

Deaths occurring in each class of mines were as follows:—209 in coal mines, 7 in salt mines, 2 in wolfram mines, 3 in mica mines, 5 in tin mines, 8 in silver-lead mines, 5 in manganese mines, 1 in a gold mine and 3 in an iron mine.

Twenty-one persons lost their lives by explosions of gas, 57 by falls of roof, 65 by falls of side, 35 in shafts, 9 by explosives, 20 by haulage, 11 by other accidents underground, and 25 on the surface.

A list of these accidents appears in Appendix II, Table I. In addition to these there were 45 other accidents causing the death of 51 persons. These also appear in Appendix II, Table I, but are listed separately, reasons being given in each case for their exclusion from the statistical table.

Each fatal accident is described briefly in Appendix II, Table I, but the following are reported at greater length. The numbers refer to the numbers in the Appendix.

#### EXPLOSIONS OF FIREDAMP.

##### *No. 1.—The Bengal Iron Company, Limited's Jeetpur coal mine.*

This accident occurred in the workings of a pair of new shafts which had been sunk in virgin ground to a seam in which the presence of gas was unknown in the surrounding district. No. 1 shaft is 447 feet and No. 2 shaft 460 feet deep. They were connected by a straight gallery. On both sides of No. 1 Pit level galleries had been driven for a distance of about 500 feet. At a distance of 150 feet from the shaft, rise galleries had been driven a distance of about 220 feet. Drilling in all the galleries was being done by means of compressed air hammer drills. On the side of the pit in which the accident occurred, about six weeks before the accident, the rise gallery had been stopped and the air pipes removed for a distance of about 150 feet from the face in order to extend the pipe line in the levels. On the 23rd January a party consisting of one surveyor, one assistant surveyor and one chainman from the Department of Mines, and three colliery employees to act as chainmen, descended the mine for the purpose of making a survey in connection with a case under the Land Acquisition (Mines) Act. The overman of the colliery reported to the surveyor that the mine was in a safe condition. The surveying party went into the rise gallery and the dial was set up at a point about half-way up the gallery. Shortly afterwards one of the colliery chainmen was sent up the gallery with an open light. When the chainman had gone up some distance an ignition of gas occurred. The flame extended to the position of the dial. The colliery chainman was so severely burnt that he died 24 hours later, and the surveyor and another chainman also received severe burns.

In commenting on this accident it must be remembered that no indication of firedamp had been found in the mine up to the time of the accident and that so far as was known the seam did not give off firedamp. For these reasons the management was not held to have been culpably negligent. The overman stated that he

had examined the gallery that morning but admitted that he had just shown his lamp up to the face from a considerable distance away from it. It did not occur to him that there might be firedamp in the air and in any case he was not in a position to test for the gas as he did not possess a safety lamp. If he had gone further towards the face he would in all probability have ignited the gas and been burnt.

An inspection of the place was made on the day after the accident by an officer of the Department of Mines when no indication of firedamp was given on the reduced flame of the ordinary safety lamp. At another inspection on the 4th February, however, firedamp was detected at a point 150 feet from the face of the gallery. Obviously the gas had been slowly accumulating during the period between the two inspections, as had also undoubtedly been the case during the interval between the stoppage of the gallery and the accident.

While General Rule 4 (a) is perhaps not as explicit as it might be and while it would be an unnecessary hardship to insist on inspections with the safety lamp being made in every mine it may be pointed out that the rule would appear to require tests to be made for the presence of gas. The rule requires inspections to be made for the purpose of ascertaining the condition of the mine so far as the presence of gas, ventilation, etc., are concerned. That cannot be done properly without the aid of a safety lamp. To comply strictly therefore with General Rule 4 (a) tests for firedamp should be made by the competent person appointed for the purpose, whether firedamp is suspected to be present or not, as unless a test has been made, it is impossible to be certain that no firedamp is present in the air. The rule should be interpreted in this way in all new mines in the initial stages of development, particularly, as in this instance, where the seam is reached by shafts sunk through the measures.

*No. 2.—The North Western Railway's Khost (Ghuz) coal mine.*

This coal mine has been the scene of several accidents due to explosions of firedamp. An explosion in 1908 resulted in the death of 20 persons. Since then there have been three ignitions, one of which caused the death of two persons. In 1899 a fire, probably caused by an explosion of gas resulted in the loss of 47 lives. The seam in which the accident to be described occurred has an average thickness of about 2 feet and dips at an angle of 53°. It gives off firedamp and safety lamps are used in the mine. The method of working is modified longwall. At the time of the explosion a longwall face 25 feet wide was being carried upwards from No. 4 West Level (see Plan A). It had advanced to a distance of 90 feet above the level and 65 feet above the companion level or "kamani" as it is called locally. Following up the extraction of the coal the face was systematically timbered and packs consisting of a double row (3 feet wide) of bags of palm leaf matting filled with shale from the face were built. The packs were about 15 feet apart and carried as near to the face as the work would permit, usually from 4 to 10 feet. The space between the packs was partially filled with shale obtained in the working of the coal seam. Two roads, about 25 feet apart, were maintained through the goaf in continuation of the two galleries or "stentons" connecting the main and companion levels. The coal was passed through a sheet iron shoot into a tram standing in the level below. To meet the longwall face a dip gallery had been driven from the level above for a distance of about 50 feet. Owing to the emission of a small quantity of firedamp, however, the dip gallery was stopped about three weeks before the accident. About the same time inflammable gas was encountered in the longwall face, but was removed by means of a hand blowing-fan placed in the companion level (see enlarged part Plan A). The mine was ventilated naturally and the air current coming from the main level which was the intake, was conducted round the face by the packs into the companion level which formed the return airway. The hand blowing-fan was employed to assist the ventilation at the face and in particular to clear out accumulations of gas. Gas was detected on the longwall face on several subsequent occasions, and on each occasion cleared out, but for about a week before the explosion no gas was reported and the work went on without interruption.

On 9th March 1922, a day shift of about sixteen persons went to work in and about the longwall face. These consisted of a coal-cutter, a shoveller, timbermen and packmen, all of whom worked in or close to the face. There were also four

men employed alternately in working the hand fan. During the night a narrow drivage or *pugma* about 6 feet wide was commenced in the inner corner of the face, in preparation for a horizontal cut about 5 feet thick along the face which was the method of extraction employed. The *pugma* was driven about 3 feet during the night shift. At the commencement of the day shift the chargeman found a small quantity of gas in the *pugma*. He stopped the work and put up a canvas sheet between the end of the air pipe and the face. This was said to have cleared the gas and coal cutting was resumed until the *pugma* was driven up the full distance of about 5 feet. The cutting of the 5 feet slice in a level direction was then commenced. During the driving of the *pugma* the thickness of the seam had increased from 2 feet 6 inches to 4 feet. Shortly after midday the man in charge of the fan carried an air pipe to the face for the purpose of extension and returned for his tools. On the way down he passed four packmen taking up packs to extend the packwalls. Shortly after the packmen reached the face an explosion of firedamp occurred. The flame of the explosion was projected for about 80 feet from the face and severely burnt 16 persons, of whom 13 died.

A full inquiry into the accident showed that the ignition was, in all probability, caused by a defective safety lamp. The lamp was found hanging on a prop near the roof in the position shown in the section (Plan A). It was examined after the accident and it was found that amongst other defects the gauze was dirty, the glass was slack and the flame could be extinguished by blowing over the top of the glass, and that the lower asbestos ring was old and was not air-tight. Many of the other lamps in use at the colliery were in an unsatisfactory state of repair.

The accumulation of gas was presumed to have been due to a larger emission of gas than usual from the thickened coal which had just been reached, and to the partial blocking of the air passage by the packmen, timbermen and others who were at work at the time of the explosion. It was considered that the use of a blowing fan introduced a danger, as it would tend to produce an explosive mixture at the face instead of withdrawing the gas, as might have been possible if an exhausting fan had been used. The application of an exhausting fan would have been difficult however as a longer length of pipes would have been required and frequent realignment of the pipes would have had to be made. These difficulties probably rendered the arrangement of the fan for exhausting impracticable. Owing to the fact that the goaf between the packwalls was empty, there was considerable leakage of air through the packwalls, and this leakage reduced the ventilation at the face. The management were called upon to improve the ventilation of the mine and to provide a sufficient number of serviceable lamps.

The man in charge of the safety lamps at the colliery at the time of the accident was discharged.

### *No. 3.—The Kalipahari Coal Company, Limited's Damra coal mine.*

This accident points once more to the necessity of using safety lamps in all unventilated main galleries in seams in which inflammable gas, although not normally present, has occasionally been met with. The main gallery in which the accident occurred had been inspected twice on the day of the accident, and tests with a safety lamp had shown no indications of the presence of firedamp. Open lights were used by the men working in the gallery. Firedamp had, however, apparently been slowly accumulating in the gallery throughout the day, as, late in the evening, an ignition was caused by an open light and one man was so severely burnt that he died in a few hours. Accidents of this kind occur from time to time and the obvious way to prevent them is to use only safety lamps in all advance galleries in which inflammable gas has been found.

### *No. 4.—The New Ghusick Coal Company's New Ghusick coal mine.*

Two miners were working in an advance heading of small dimensions when one of them accidentally struck and broke the glass of his safety lamp with his pick. An ignition of firedamp followed and both miners received burns from which they died a few hours later. The seam gave off firedamp in small quantities and safety lamps were used throughout the mine.

The accident points to the necessity for improved ventilation in advance galleries. The use of safety lamps is insufficient unless the ventilation is ade-



quate to dilute and render harmless accumulations of gas. The adequate dilution of inflammable gas is provided for in General Rule 14 and to comply with this rule a current of air should be constantly circulated in all working places sufficient to prevent dangerous accumulations of gases.

*No. 5.—The Bengal Coal Company, Limited's Parbelia coal mine.*

The seam in which this accident occurred lies at a depth of about 1,500 feet from the surface. The mine is served by two shafts, and the workings at the time of the accident consisted of those shown on Plan B. The seam gives off firedamp and since the commencement safety lamps have been used throughout the mine. The accident occurred on the east side of the mine in the pair of narrow galleries marked A and shown enlarged on the plan. At the time, No. 1 pit was not being used for winding and the coal obtained from the left-hand narrow gallery at A was stacked on the side of the main level leading to No. 1 pit. The coal from the right hand narrow gallery was carried down to the level leading to No. 2 pit whence it was raised to the surface. On the morning of 5th July 1922 at about 7 A.M. six persons descended No. 2 pit and went to work in these narrow galleries. Two of them went into the left-hand gallery. In order to reach their working place they should have gone by way of the right-hand gallery but it is conjectured that instead of doing so they obtained access to the left-hand gallery by opening the brattice above the stopping at the foot of the pair of galleries. The other four persons sat down in the main upper level behind the stopping. At about 8 A.M. an explosion occurred at the face of the left-hand gallery and extended to where the four miners were sitting at the bottom of the right-hand gallery, a distance of 136 feet from the face. The two miners in the left-hand gallery were found dead at a point about 50 feet from the face. The other four were severely burnt and two of them died within a few days. After the explosion, a damaged safety lamp was found near the face in the left-hand narrow gallery. On examination it was found that there was a large hole in the gauze of the lamp. After a full inquiry it was concluded that this lamp had ignited an accumulation of firedamp near the face and that the flame had been propagated to the bottom of the narrow galleries by the fine coal dust that was present. A prosecution was instituted against the lamp cabin attendant who issued the defective lamp but the case was dismissed. The cause of the accumulation of firedamp in the gallery was held to have been partly due to the derangement of the brattice above the stopping at the foot of the galleries. This accident points to the following:—

- (1) Wherever practicable, narrow galleries should be avoided in a seam which gives off firedamp. They retard the flow of air and are consequently more difficult to ventilate. After this accident the driving of narrow galleries was stopped forthwith at the colliery.
- (2) In seams giving off firedamp in appreciable quantities, an inspection with a locked safety lamp should be made by a competent person of all advance galleries within two hours of the commencement of each shift, unless in the case of a shift immediately following on a previous one. Such an inspection was apparently not made on the occasion of this accident and if it had been made the accumulation of firedamp might have been detected and the accident avoided. At present General Rule 4 (a) does not require an inspection before each shift except when a mine has been unworked for more than 24 hours, but it is proposed to amend the rule so as to require an inspection before each shift and in addition inspections during the shift.
- (3) A defective safety lamp is a grave source of danger in places where an accumulation of firedamp is likely to occur and strong action should be taken against any person issuing a damaged lamp for use underground. It is proposed also to stiffen the rules with respect to the issue of safety lamps.

FALLS OF ROOF.

*No. 16.—Messrs. S. B. Raha & Sons' Godhur coal mine.*

A pillar was in process of extraction in No. 12 seam which is 12 feet thick. About 9 feet of the seam is removed leaving 3 feet of coal next the roof. The

method of extracting the pillars was to take out the bottom 7 feet of coal propping the remaining 2 feet until it "weighted." The props were then withdrawn and the "top" coal allowed to fall. In this case, however, when the props had been withdrawn the top coal did not part easily and deceased and his companion proceeded to cut away some coal from the pillar side underneath in order to release the top coal. The block of coal which was 12 feet by 4 feet by 2 feet thick fell unexpectedly, however, killing deceased and injuring his companion.

The practice of carrying roof coal on props in pillar extraction has led to many accidents and, unless it is necessary to do so for the purpose of supporting a weak roof, it is a practice that cannot be too strongly condemned.

*No. 17.—The North-West Coal Company, Limited's Ena coal mine.*

A pillar next the goaf was in process of extraction. The seam is 12 feet thick but 2 feet of coal was left as a roof, the stone above being weak in some places. The position at the time of the accident is shown in plan C. A fence had been erected separating the working places in the pillar from the goaf. On the working side of the fence props had been set but on the goaf side the roof was unsupported. On the morning of the day on which the accident occurred the shift-sirdar instructed the timberman to set some props close to the fence. He had put up the props marked 1 and 2 on the plan and was measuring the length required for a third one when a block of the roof coal having an area of about 130 square feet and 2 feet thick, together with a part of the corner of the pillar, fell and killed him almost instantly.

The most important lesson to be learned from this accident is that in pillar extraction near the goaf the roof and sides contiguous to the working places should be regularly examined and supported if necessary. A fence should be erected to separate the working places from the goaf, but if work is proceeding close to the fence, as was the case where this accident occurred, the roof and sides beyond the fence should be examined just as if they were part of the working place. If an examination had been made in this case, the weakness of the roof would in all probability have been realised and timber would have been put in to support it. The presence of a small fault, the direction of the cleat of the coal and the open end of the goaf (see plan) all contributed to the accident, and an examination beyond the fence would have made it clear that if a fall of roof occurred it might extend into the working place even though that was timbered.

**FALLS OF SIDE.**

*No. 61.—The Kinuri Coal Company, Limited's Kinuri coal mine.*

This accident occurred in a shaft which had been deepened to prove a lower seam. The shaft was 16 feet diameter and 237 feet deep. The dressing of the sides towards the bottom had been very roughly done. Considerable trouble had been experienced from the percolation of water from old goafed workings to the rise of the shaft. The water contained iron and a deposit of oxide of iron covered the shaft sides below the stone-head. This deposit to some extent concealed the condition of the shaft sides. During 1921 the shaft was water-logged but by the end of January the water had been lowered sufficiently to allow air to pass through the shaft. On the 6th February a fitter who was in the shaft bottom for the purpose of repairing a pump was struck on the head by a piece of stone weighing 78 lb. and killed instantly. The shaft had been regularly examined and the last examination was on the day before the accident.

The sides of unwallled shafts which are exposed to changing conditions should be examined regularly with great care. A shaft which has been water-logged should be very carefully examined after it has been dewatered. During the examination the side should be tested wherever it appears to be unsound and all stones which do not ring hard should be removed. The same remarks apply to shafts in which steam pumps are installed. In such circumstances rapid changes of temperature often occur and the consequent expansion and contraction may loosen stones in the shaft sides which might otherwise have remained firm.

*No. 70.—The Busserya Coal Company, Limited's Busserya coal mine.*

A miner passed through a fence and robbed coal from a portion of a quarry which had been declared to be dangerous. This practice is a frequent source of accidents and it is a difficult one to prevent. It was proved that the place at which the accident occurred had been worked in a dangerous manner for a considerable time before it was fenced off, the coal having been undercut over a long length of face leaving overburden which had collapsed at several places and was in danger of falling at others. It was also shown that no reports on inspections of the quarry had been made. The manager was prosecuted and fined Rs. 100 or imprisonment for one month for violation of General Rule 4(b).

*No. 75.—The Gopalichuck Coal Company, Limited's Gopalichuck coal mine.*

This accident occurred in a quarry where the coal seam and the strata above it were of a soft and friable nature. The coal had been undercut and a part of it and some of the super-incumbent strata fell on a miner and killed him.

The method of working practised at this quarry is a fruitful source of accidents. Where the overlying rocks are of a soft nature, the removal of the overburden should invariably precede the extraction of the coal. Indeed this method is the safest even where the overlying strata are hard. As the outcome of the accident the agent and assistant manager were prosecuted for breach of General Rule 3 and fined Rs. 100 and Rs. 200, respectively. The manager, who had been on leave for some time and resumed duty on the day previous to that on which the accident occurred, was also prosecuted but was acquitted.

*No. 105.—The Tata Iron and Steel Company, Limited's Jamadoba coal mine.*

A new incline was being cut in a virgin part of the property. The strata through which the incline was passing consisted of a covering of clayey material, about 6 feet thick and fairly well consolidated, over a series of thin bands of friable sandstone. At the time of the accident the excavation was 66 feet long, 12 feet wide and about 17 feet deep at the deepest part. Five persons were at work in the cutting when one side of it, to the extent of about 30 tons of debris, collapsed, burying three persons completely and the other two partially. The two partially buried workmen managed to extricate themselves but the other three had to be dug out, when they were found to be dead. The strata in the vicinity of the cutting are highly inclined and the collapse of the side revealed a "slickenside" dipping into the cutting at a high inclination. In horizontal strata of the same nature the danger of collapse would probably have been slight.

The lesson taught by this accident is that where the strata are of a soft nature and dip into the side of the cutting, the weak side or sides should either be sloped back at a safe angle or temporarily secured by timber until a permanent brick or stone arching or walling has been built.

**IN SHAFTS (OVERWINDING).**

*No. 115.—The Bengal Coal Company, Limited's Sodepur coal mine.*

A cage containing sixteen persons was being lowered down a shaft, 887 feet in depth. When the cage was nearing the bottom of the shaft the engineman lost control of the engine and the cage was dashed with such violence on the bottom that all the occupants sustained serious injuries and eight of them died subsequently. The ascending cage was caught on the detaching hook, the rope was released and seven spare coils on the drum were unwound before the engine was brought to a standstill by means of the steam brake. It was considered that the accident was due to forgetfulness on the part of the engineman who was operating the winding engine. It was proved that the brakes were ample and that there was no defect in the winding engine which could have been the cause of the accident. Apparently the engineman had carelessly allowed his mind to stray from the work in hand and had not realised that it was time to check the speed of the engine until the crash of the cage in the headgear brought him to his senses. He did not leave his post, and was found by the manager standing beside the engine with the reversing lever in the mid-position, the steam throttle shut and the steam brake applied.

This accident points to the necessity for attaching devices for the prevention of overwinding to steam winding engines installed at deep shafts. The difficulties of winding increase with the depth of the shaft and in such cases accidents due to neglect on the part of the engineman or defective brakes can best be prevented by a satisfactory form of overwinding preventer in addition to the detaching hook which is a familiar feature at coal mine shafts in India.

*No. 116.—The Equitable Coal Company, Limited's Hariladih coal mine.*

This accident was also due to overwinding and it illustrates the undesirability of long hours of work on the part of persons in charge of winding machinery. Two workmen were being lowered in a shaft, when the engineman lost control of the engine, and the descending cage struck the bottom of the shaft with such force that one of the men sustained severe injuries from which he died the next day.

At the inquiry which was held, it transpired that the engineman had been on continuous duty for twenty-one hours owing to the absence of two other enginemen, one of whom should have relieved him at the end of eight hours. The accident appeared to have been due to forgetfulness on the part of the engineman, and in consideration of the length of the period during which he had been on duty he was not considered to be blameworthy. Proper arrangements had not been made for relieving the engineman at the end of his shift. It was considered that it would be difficult to prove a clear violation of any rule under the Indian Mines Act and instead of a prosecution, fines were imposed by the management on the persons held to be in any way responsible for the accident.

A long period of work on such responsible duty as that of having charge of a winding engine is sure to lead to accidents and the official of the colliery who has charge of the enginemen should be held personally responsible for seeing that such arrangements are made as will prevent any engineman being on duty beyond a reasonable period.

IN SHAFTS (ROPES AND CHAINS BREAKING).

*No. 117.—The Tata Iron and Steel Company, Limited's Malkera coal mine.*

The scene of this accident was in the sump of a pit, 364 feet deep. Four steel guide ropes were being fitted in the shaft. The method of fitting them was as follows:—The guide ropes consisted of a solid stranded rope of seven wires the diameter of the rope being  $1\frac{1}{8}$  inch. The piece of rope used was about 1,400 feet long, more than sufficient for three guides but not enough for four. One end of this rope was clamped to the end of the winding rope and the whole coiled on the winding drum. The other end of the guide rope was then taken over the headgear pulley and lowered down the shaft. At the shaft bottom the guide rope passed between two girders set into the shaft sides and was clamped underneath. When the clamps had been satisfactorily secured a signal was given to the banksman—who repeated it to the engineman—to pull up the slack rope, the winding engine being used for the purpose. The rope was then secured by a screw-clamp in the headgear and cut off. Plan D shows details of the method of clamping the guide rope at both ends. Three guides were successfully installed in this way. For the remaining guide, another piece of the same rope, just sufficient in length for one guide, was obtained, clamped to the winding rope, wound on the winding drum and then lowered down the shaft in precisely the same way as before. In this case, however, when one end of the guide was at the pit bottom, the other end, clamped to the winding rope, was midway between the headgear pulley and the winding drum. Thus during the operation of taking up the slack of the guide rope the whole pull due to the weight of the rope was on the clamps holding the two ropes together. This was not so when the other three guides had been installed since in those cases part of the guide rope was coiled on the winding drum, so that the clamps binding the two ropes had to bear only a part of the pull. None of the engineering staff of the colliery supervising the operations appeared to have noticed that there was considerably more risk of the clamps slipping in the case of the last guide to be installed than in the case of the other three. After clamping the fourth guide in the pit bottom, the operation of taking up the slack rope commenced. At that time eight men whose work was to fix the shaft bottom

clamps were in the shaft bottom. Apparently lulled into a false sense of security by the freedom from accident with which the other three guides had been installed these men did not come out of the shaft and stand clear in the inset levels as they ought to have done. After the rope had been raised slightly the guide rope slipped through the clamps binding it to the winding rope and the whole of the guide, coil upon coil, fell to the shaft bottom killing three of the workmen and injuring the other five more or less severely. The clamps were not properly designed for the purpose for which they were used and there was doubt as to their tightness.

This accident illustrates once more the careless manner in which mining plant and machinery are frequently installed. The clamps used to bind the guide and winding ropes were not adequate for the purpose, and it ought to have been evident to the supervising staff that there was a grave risk of the guide rope slipping through the clamp. It appeared that the person in charge of the workmen in the shaft bottom ordered them to come out before tightening operations commenced but that they refused to do so saying that no accident could happen. It was made clear, however, at the inquiry which was held into the occurrence that no one realised that there was a grave risk of the guide rope slipping and falling down the pit and that, while the men should have come out of the shaft bottom during tightening operations on all occasions, it was absolutely imperative that they should do so during the tightening of the last guide rope. At the instigation of the Department of Mines the engineering staff of the colliery was strongly censured by the management. The installation of guide ropes in a shaft is an operation which requires careful organization and close supervision and at every stage of the work definite instructions should be given by the engineer-in-charge in order to ensure the safety of the workmen.

*No. 119.—The Ghusick and Muslia Collieries, Limited's Ghusick coal mine.*

This accident occurred in an upcast shaft, 450 feet deep. A fitter and his assistant had been repairing a steam joint near the bottom of the shaft from the top of the cage. The cage was lowered to the shaft bottom and the assistant went away for some bolts that were required, the fitter remaining on the top of the cage. While the assistant was away one of the guide ropes broke at the clamps in the headgear and falling down the shaft struck the fitter and injured him so that he died shortly afterwards. It was found that the rope was badly corroded where it had broken. The clamps were also badly weakened by corrosion. This part of the guide rope had apparently seldom or never been examined as if an examination had been made the extent of the corrosion must have been noticed. The weekly examination of the guide ropes was the duty of the fitter who was killed.

The corrosion was probably due to the effect of heated gases from the mine together with the ordinary process of rusting. The frequent application of grease would have greatly retarded corrosive action. The weekly examination of guide ropes should include the parts of the ropes in the headgear and the clamps holding them. It is good practice also to shift the point of suspension of the guide ropes at regular intervals.

#### EXPLOSIVES.

*No. 143.—The Samla Govindpur Collieries, Limited's Baidyanathpur coal mine.*

Accidents through the careless or improper handling of gunpowder are of frequent occurrence in Indian mines. A miner was supplied with ten pounds of gunpowder to be manufactured into cartridges for use underground. Instead of making the cartridges in the special room provided at the colliery he took the gunpowder to his home. Whilst he and two other miners were making the cartridges a spark from a pipe or a fire ignited the gunpowder which exploded and burnt them severely. The miner who received the powder died of his injuries.

There are no rules under the Indian Mines Act dealing with the handling of explosives and the manufacture of gunpowder into cartridges on the surface, but it is hoped that this omission will be remedied when the rules are amended. Several of the larger coal companies have, however, framed and enforced bye-laws of their own for the safe manufacture and distribution of gunpowder. These bye-laws have worked satisfactorily.

## HAULAGE.

*No. 155.—The Kirkend Coal Company's Kirkend coal mine.*

This accident occurred at the bottom of a main haulage road, terminating in two loading sidings. The road dipped at a gradient of about 1 in 6. In one of the sidings there was a set of twelve loaded tubs, while in the other there were seventeen empty tubs (see Plan E). Both sets rested on strong buffers. The clear space between the two sets was about eighteen inches wide. Coal was being loaded from places directly to the dip of the sidings, and the loaders passed up the clear space between the two sets in order to load the tubs allotted to them. When the accident occurred there were ten persons between the sets, their positions being shown by crosses. Practically all the tubs contained some coal, some near the top being nearly loaded. According to the evidence taken at the inquiry it appeared that one of the loaders threw a large piece of coal into the sixth tub from the bottom which was nearly empty. The shock derailed the tub and the whole train was set in motion downhill, with the result that seven of the tubs were derailed and pushed into the positions shown in the plan. The line was not very solidly laid at that point and in the level gallery into which some of the tubs were forced, the floor coal was cut away so that the tubs near the bottom of the set fell into the excavation. Nine of the loaders escaped but one was caught between the seventh tub of the set and one of the loaded tubs in the other siding and so severely crushed that he died soon after he had been released.

The practice of loading tubs on a gradient is a dangerous one, especially if there is another set standing alongside and the loaders have to pass between the sets or between the side of the road and the tubs.

Unless the line is practically level only a few tubs should be loaded at a time and there should be ample room for the loaders to escape in the event of a disturbance such as occurred in this accident. Incidentally, it should be pointed out that where loading is being done in a situation similar to that which was the scene of this accident, a runaway switch or stop-block should be placed on the line at some distance above the siding so as to safeguard the loaders from a runaway. Wherever possible loading sidings should be on the level and clear of the straight part of the haulage road.

## ELECTRICITY.

*No. 191.—The Aldih Coal Company, Limited's Aldih coal mine.*

This accident is a particularly clear example of the importance of efficient earthing of underground electrical apparatus. Current was switched on to a dip pump installation while a gang of men who had completed its removal to a new situation were handling the cable supplying the apparatus. The armour of the cable and the metal in connection therewith had become electrically charged by reason, it is supposed, of a blown fuse wire having fallen and made contact with a metal stud within a fuse-box which formed part of the installation. All the men received a shock and in the case of an electric *mistri* the shock proved fatal. The fuse-box which was suspected to have been defective had been in use in another place and was not examined when re-installed.

Assuming the cable armour and other metal to have become charged in the manner supposed, the accident would have been prevented by better design and construction of the fuse-box or by examination thereof before the current was switched on. No serious consequences could have resulted, however, had not the earthing of the apparatus been rendered inefficient by the existence of numerous improperly made and loose earth connections between the installation and the surface earthing system.

## MISCELLANEOUS ON SURFACE.

*No. 205.—The Central Kurkend Coal Company, Limited's Central Kurkend coal mine.*

The overburden was being removed from a seam of coal and in the earth cutting stacks were left for the purpose of checking the measurement of quantities cut. One of these stacks, about 9 feet high, which had been partly undercut, collapsed

and fell on a workman. He was severely injured and died about three weeks afterwards. Where it is necessary to leave such stacks the height of them should be kept as small as possible by reduction at intervals. They should be regularly inspected and if they show signs of collapse they should be removed.

#### **Section IV.—Prosecutions and Additions to the Act. Prosecutions.**

Judgment was given in the following prosecutions during the year. Unless otherwise stated "rule" means a rule under Notification No. 864-68-20, dated the 10th March 1904, being rules for the working of coal mines.

The owner of J. Boisogomoff's Dobrana coal mine was prosecuted under Rule 19 for not fencing a disused shaft and under rule 3 of Bengal Government Notification No. 3970-Com., dated the 28th August 1918, for not keeping in repair a gate at the entrance to an incline. He was acquitted.

The owners and the manager of Patel Brothers and Company's Kalimati coal mine were prosecuted under rule 7. They were fined Rs. 100 and Rs. 200, respectively.

The owners of B. B. Trigunait's Khas Angarpathra coal mine were prosecuted for not complying with a notice under section 15(1) of the Indian Mines Act, requiring them to safeguard a public road. They were acquitted.

The owners of the National Coal Company's Angarpathra coal mine were prosecuted for not complying with a notice under section 15(1) of the Indian Mines Act, requiring them to safeguard a public road. They were fined Rs. 200.

The owner and manager of the East Bagdiggi Coal Company's East Bagdiggi coal mine were prosecuted under Rules 3, 4 and 17. The owner was fined Rs. 15. The manager could not be traced and the case against him was withdrawn.

The owner and manager of Trinoyoni Debi and others' Mangalpur (Upper Bungalow) coal mine were prosecuted under Rules 1, 3 and 9. The owner was discharged and the manager fined Rs. 20.

The owners of J. N. Das and Company's West Baraboni coal mine were prosecuted under Rule 47, read with section 13(1) of the Indian Mines Act, for not appointing a qualified manager. They were fined Rs. 15.

The owner and manager of D. Marwari's Mouthdih coal mine were prosecuted under Rules 3, 7 and 19. The manager was fined Rs. 50. The case against the owner was dismissed.

The owner of R. N. Banerji and others' Kalikapur coal mine was prosecuted under Rules 1, 3 and 7. He was fined Rs. 75 but was acquitted on appeal.

The manager of R. N. Mondal and Company's New Nayadanga coal mine was prosecuted under Rules 3 and 7. He was fined Rs. 40.

The owner of W. C. Bhattacharji's Egarcour coal mine was prosecuted under Rule 47, read with section 13(1) for not appointing a qualified manager. He was fined Rs. 15.

The agent of the Model Brindabanpur Coal Company's Brindabanpur Model coal mine and B. Gupta and S. Tarafdar's Surhid coal mine were prosecuted under Rule 46, read with section 13(1) of the Indian Mines Act, for not appointing a qualified manager. He was fined Rs. 50.

The agent and manager of Nistarini Dassi's Jamehari coal mine were prosecuted under Rules 3 and 7. They were fined Rs. 100 each.

The owner, agent and manager of the Dangaich Coal Company's Tundoo coal mine were prosecuted under Rules 7 and 13 and Rule 3 of Government of Bihar and Orissa Notification No. 11761-M, dated the 23rd August 1918, for not fencing disused workings, for not providing a secure case or canister for explosives in the mine and for not keeping in repair "gates" at the entrance to the inclines. The owner and agent (one person) and the manager were fined Rs. 75 each.

The agent, manager and assistant manager of the Gopalichuck Coal Company, Limited's Gopalichuck (Head) coal mine were prosecuted under Rule 3. The agent and assistant manager were fined Rs. 100 and Rs. 200, respectively. The manager was acquitted.

The manager of the Busserya Coal Company, Limited's Busserya coal mine was prosecuted under Rule 4. He was fined Rs. 100.

The owner and manager (one person) of Radha Gobinda Sircar's Hirakund coal mine were prosecuted under Rules 7 and 22 and Rule 2 of Government of Bihar and Orissa Notification No. 11761-M, dated the 23rd August 1918, for not fencing a disused gallery, for not providing at the mine ambulances or stretchers with splints and bandages and for not keeping an accurate register of persons going underground. He was fined Rs. 10 under each count.

The owner of Pir Mohanlal's Muraidih (Locobad) coal mine was prosecuted under section 16 of the Indian Mines Act for not reporting the opening of the mine. The complaint was dismissed.

The owners (two) of Abdur Sattar and Abdur Rahim Khan's Brindabanpur coal mine were prosecuted under section 13(1) of the Indian Mines Act, for not appointing a qualified manager. They were fined Rs. 200 or Rs. 100 each.

The owner and manager of J. P. Lalla's South Barora coal mine were prosecuted under Rules 3, 7 and 19. They were fined Rs. 150 each.

The owner and manager of D. P. Verma and Son's Pirorgoria coal mine were prosecuted under Rules 3 and 7 and Rule 3 of Government of Bihar and Orissa Notification No. 11761-M, dated the 23rd August 1918, for not keeping working places secure, for not fencing disused workings and for not keeping a gate at the entrance to an incline. They were fined Rs. 75 and Rs. 150 respectively.

The owner and manager of Nauren Singh's Bhutdoba coal mine were prosecuted under Rules 2, 19 and 20. They were fined Rs. 25 each.

The agent of the New Moheshpur Coal Company's New Moheshpur coal mine was prosecuted under Rule 19. He was fined Rs. 30.

The agent and manager of P. K. Chatterjee and Brothers' Jotejanaki coal mine were prosecuted under Rule 7 and section 15(2) of the Indian Mines Act, for not fencing disused galleries and for disobeying an order prohibiting the employment of women and children underground. The agent was fined Rs. 40 and the manager was acquitted.

The owner of L. Newton's Newton Pench coal mine was prosecuted under Rule 8 for not reporting the occurrence of a serious accident at the mine. He was fined Rs. 30.

Twenty-four prosecutions were instituted for failure to submit annual returns for the year 1921 within the prescribed date. In fourteen cases fines aggregating Rs. 375 were imposed; eight cases were withdrawn; in one case the accused could not be traced and in one case the accused died.

Information was received of the following prosecutions instituted by colliery officials against their subordinates under Special Rules made under section 21 of the Act:—

An overman and a sirdar of the Jamehari coal mine belonging to Nistarini Dassi were prosecuted under Rules 38, 40 and 41 for failing to see that sufficient supplies of timber and other appliances were kept at the mine and failing to report a deficiency therein; for not taking due precaution in the execution of dangerous operations and not fencing the entrance to disused workings; and for failing to see that the roof and sides of workings were kept secure. They were fined Rs. 5 each.

The manager of the Burrakur Coal Company, Limited's Charanpur coal mine prosecuted a fireman under Rules 64—67 for neglecting his duties. The case was subsequently withdrawn.

The manager of the Churulia Coal Company, Limited's Churulia coal mine prosecuted a banksman under Rule 78 for failing to close a stop-block and opening the runaway switch in a haulage incline. His negligence resulted in a fatal accident. He was fined Rs. 25.

The manager of P. K. Chatterjee and Brothers' Jotejanaki coal mine prosecuted a sirdar for violation of Rules 39 and 40 for not maintaining fences in good condition and not taking due precautions in dangerous operations. The case was dismissed owing to the absence of the complainant.



The manager of the Pench River Coal Company, Limited's Eklehra coal mine prosecuted an engineer under Rule 9 for being in a state of intoxication while in charge of boilers. He was fined Rs. 20.

The manager of the Bengal Coal Company, Limited's Parbelia coal mine prosecuted the lamp cabin attendant for breach of Rule 5 in that he issued a damaged safety lamp for use in the mine. The case was dismissed.

The manager of P. Mukerhji and Company's New Peepratand coal mine prosecuted a fireman under Rule 5 for leaving unattended the boilers while under steam. The accused absconded and could not be traced.

The manager of D. N. Ghosh and Brother's Tetturiya coal mine prosecuted a fitter under Rule 4 for absenting himself without leave. He was fined Rs. 15.

The manager of the Burrakur Coal Company, Limited's Joba coal mine prosecuted a fireman under Rule 4 for absenting himself without permission. The case was withdrawn as the accused absconded and could not be traced.

A brakeman at the Ledo Valley colliery belonging to the Assam Railways and Trading Company, Limited, was prosecuted under Rule 71 of the Special Rules in force at the mines belonging to this Company for not causing a stop-block to be in position on a self-acting haulage road. He was fined Rs. 50 but the conviction was quashed on revision.

#### ADDITIONS TO THE ACT.

The rules published with the notification of the Government of India in the Department of Commerce and Industry, No. 11793-103, dated the 30th December 1908, were amended in Notification No. M-498, dated the 29th June 1922, which is reproduced in Appendix IV, Statement No. 8.

During the year Special Rules, under section 21 of the Act, were established at 58 coal mines. Special Rules have now been established at 665 coal mines and 40 manganese mines.

#### INDIAN MINES ACT, 1923.

The Indian Mines Act, 1923 (Act No. IV, 1923) which received the assent of the Governor-General on the 23rd February 1923, and was published in the *Gazette of India* on March 3rd, 1923, is given in Appendix IV, Statement No. 9, to this report.

It may be mentioned that the Government of India are taking advantage of the opportunity presented by the enactment of the Indian Mines Act, 1923, to revise the regulations relating to the safety of mines and of persons engaged in mining. The new regulations will not come into force until the 1st July 1924. In the meantime, they are taking steps to ensure that the mine officials responsible for the regular inspection of the roads and working places in mines and for testing for inflammable and other gases shall be properly qualified persons. They have also, following the practice in other countries, appointed a Committee to enquire into the coal dust danger and to make recommendations as to the regulations to be enforced in order to minimize the risk of coal-dust accidents in future.

### Section V.—General Remarks.

#### HEALTH AND SANITATION.

The Asansol Mines Board of Health held ten ordinary meetings and five special meetings during the year. Dr. Tomb, the Chief Sanitary Officer of the Board, reported that there were 351 cases of cholera with 169 deaths and 52 cases of small-pox with no deaths during the year, as compared with 1,250 cases of cholera with 617 deaths and 74 cases of small-pox with 10 deaths during the previous year. No other disease was epidemic during the year. The health of the mining community was extremely good during the year.

The Board's anti-malarial staff made a complete mosquito and malarial survey of the Settlement. The investigation into the existence of hookworm infection was completed during the year. The total number of persons examined for hookworm was 5,689. The percentage of infection found in collieries was 68.85 per cent.,

in villages 37.09 per cent. and in municipalities 18.56 per cent. The percentage of mines found infected was 83.20. The average number of worms found per infected individual in collieries was 21, in villages 5 and in municipalities 3.

The education of the children in lower and upper primary schools of the Settlement in Elementary Hygiene was continued and highly satisfactory results have been secured.

The Jharia Mines Board of Health held fourteen ordinary meetings and seven special meetings during the year. Dr. G. W. Thompson was Medical Officer of Health during the whole period. Dr. A. G. Wright was appointed as Assistant Medical Officer of Health and joined in the month of May.

The bye-laws under the Bihar and Orissa Mining Settlements Act, 1920, were published in the local gazette in the month of March and became operative from that date. As a result of the powers conferred under these bye-laws it is anticipated that improvements in housing and matters generally affecting the public health will show a continuous progress towards betterment.

There were 279 cases of cholera with 79 deaths and 414 cases of small-pox with 10 deaths, as compared with 777 cases of cholera with 314 deaths and 207 cases of small-pox with 3 deaths in the previous year. The general health of the mining community was good.

The rainfall at Jealgora in the Jharia coalfield was 67.9 inches and at the Jharia Water Works near Topchanchi it was 66.09 inches. In the Raniganj coalfield the rainfall near Dishergarh was 35.24 inches, while at Kulti about 4 miles from Dishergarh it was 84.01 inches. In the Giridih coalfield it was 64.77 inches. These figures may be compared with 44.65 at Jealgora, 53.77 at Topchanchi, 41.77 at Dishergarh, 63.25 at Kulti and 31.68 at Giridih during 1921.

#### MINING EDUCATION.

The Principal of the Bengal Engineering College has reported that in the examination for the Diploma in the principles of mining held at the end of the college course in March 1922, of the thirteen students who appeared at the examination eleven were granted Diplomas. In the junior course, 27 were enrolled at the beginning of the session, eighteen sat for examination, and fifteen qualified for promotion to the senior course. Twenty-six students entered the preliminary or preparatory class on the mining side, and of these eighteen were promoted.

The annual mining camp was pitched in November and December 1922 at Giridih on a site near the East Indian Railway Company's colliery office. The usual courses of practical work were undertaken and visits of inspection paid to various plants and appliances of technical interest in the vicinity. The total number of students in the camp was 47, of whom 11 were special survey students.

The Mining Education Advisory Board held four meetings during the year. At the commencement of the session of 1921-22 the new scheme of instruction comprising a three year course was put into operation in Bihar and Orissa and Mr. Griffith Jones, the lecturer, and Babu N. N. Sen, the Assistant lecturer, delivered lectures in the first and second year courses at the Jharia and Sijua centres. In Bengal the lectures were continued according to the old syllabus and Mr. David Jones was appointed part time lecturer by the Board at the different centres in the coalfield.

The sessional examination under the old syllabus was held in May, the examiners being Mr. H. Lancaster, Inspector of Mines in India, and Mr. E. H. Robertson, Professor of Mining, Bengal Engineering College. Of the 100 candidates who qualified to sit for examination 49 presented themselves for examination and 31 were successful. As a result of the examination Special Mining Scholarships, tenable at the Bengal Engineering College, were awarded to Babus Haridas Mukherji, Beno, Krishna Chandra, Phani Bhusan Banerjee and Heramba Kumar Roy.

In September 1922, the Government of Bengal sanctioned the new scheme of instruction of a three year course but as this was too late to allow of the introduction of the new course in 1922-23, arrangements are being made for the appoint-

ment of an instructor so as to commence the lectures under the new scheme from September 1923.

The construction of new lecture halls at the different centres has not yet been completed but they are expected to be completed by the end of the current financial year.

In the Jharia coalfield at the commencement of the 1922-23 session the full three years course was instituted. The numbers enrolled were as follows:—first year 91, second year 90 and third year 53. Equipment has now been provided for practical instruction in Chemistry, Physics, Mine Gases and Gas-testing, Drawing and Surveying. The work has been hampered to some extent by the lack of accommodation but it is hoped that the new lecture halls will be available at the commencement of next session.

Babu Indu Gopal Banerjee delivered lectures in Bengali in the Raniganj coalfield.

Courses of lectures in Hindi to overmen and sirdars were delivered at three centres in the Jharia coalfield by Babu S. N. Bhattacharyya. The lectures were well attended. A scheme for the extension of those vernacular lectures was approved by the Government of Bihar and Orissa and arrangements have been made to commence classes at six centres. A feature of the scheme is the giving of practical demonstrations in the mine.

#### BOARD OF EXAMINERS FOR COAL MINE MANAGERS' CERTIFICATES.

The personnel of the Board underwent a change towards the middle of the year. Mr. F. Owen, on leaving India on retirement, resigned his membership with effect from the 10th May 1922. He was succeeded by Mr. J. Mackie. Six meetings were held during the year.

Thirteen first class certificates and one second class certificate of competency were granted in lieu of British certificates. One duplicate second class certificate of competency was granted during the year.

At the examinations for colliery managers' certificates of competency held at Dhanbad on the 13th, 14th and 15th and 20th, 21st and 22nd February 1922, ninety-eight candidates sat for first class and one hundred and sixty-nine for second class certificates. Certificates of competency were granted to seventeen first class and thirty-eight second class candidates.

The examiners for the first class examination were Messrs. H. M. Tarlton and J. Wilson and for the second class examination Messrs. W. Weir and R. Purdy. Messrs. H. Lancaster and D. Penman, Inspectors of Mines in India, acted as official examiners and secretary and assistant secretary, respectively.

At a meeting of the Board of Examiners held on the 4th May 1922 it was decided that, commencing from 1923, the questions set at the annual examinations should be published in the Annual Report of the Chief Inspector of Mines.

The regulations for the examinations were revised. The revised regulations came into force on 1st January 1923 and are reproduced in Appendix IV, Statement No. 7.

#### MINING BOARDS IN BENGAL, BIHAR AND ORISSA AND THE CENTRAL PROVINCES.

The Bengal Mining Board held two meetings during the year. The following matters were considered by the Board:—(a) The provisions of the Bill to amend the Indian Mines Act, 1901; (b) The provisions of the Workmen's Compensation Bill. Mr. Graham was a non-official member of the Board throughout the year. Mr. Glen George, the other non-official member, resigned and was succeeded by Mr. J. B. Wardlaw from the 5th August 1922.

The Bihar and Orissa Mining Board held one meeting during the year. The draft bill to amend the Indian Mines Act, 1901, was considered in detail. The non-official members were Messrs. R. G. M. Bathgate and J. Mackie.

There were no meetings of the Central Provinces Mining Board during the year.

#### MINING AND GEOLOGICAL INSTITUTE OF INDIA.

The total membership at the end of the year, including subscribers, was 329. At the annual meeting and at three ordinary meetings papers were read and discussed. Two field excursions were made, one in the Jharia coalfield and the other in the Raniganj coalfield with a view to investigating the losses in coal due to fire collapse, and inundation. A visit was also paid to Saltore colliery in the Raniganj field. A lecture illustrated by numerous lantern slides was delivered at Asansol by Dr. A. M. Heron on the Mount Everest expedition. In addition to the above meetings an extraordinary general meeting was held when a new rule affording privileges to members retiring out of India was passed, by which such members may compound all future subscriptions on payment of Rs. 50.

Three parts of the Transactions were published.

Two meetings were held in the Central Provinces and Berar Branch, at one of which Dr. L. L. Fermor delivered a lecture illustrated by lantern slides on the manganese deposits of India.

The Government prize for the best paper accepted during the year for publication was awarded to Dr. L. Dudley Stamp for his paper entitled the "Geology of part of the Pondaung Range, Burma." The writer of this paper was also awarded the Institute's gold medal. The silver medal was awarded to Mr. D. Penman for his paper on "The use and Scope of Breathing Apparatus in Indian Mining." No award was made of the bronze medal.

The headquarters of the Institute has lately been removed to 27, Chowringhee, Calcutta.

#### THE ASSOCIATION OF COLLIERY MANAGERS IN INDIA.

The Association has been affiliated to the National Association of Colliery Managers in Great Britain. The business considered by the Council during the year included the following subjects:—(a) Standard agreements, (b) Superannuation, (c) Permits, (d) Proposed registration of winding enginemen and other persons in charge of machinery, (e) The Indian Mines Act, (f) The Electricity Act, (g) Mining lectures in the Raniganj coalfield, (h) Apprentice mining students, (i) The welfare of women mine workers.

An interesting visit took place to Jealgora where coal-cutting machines were seen in operation.

#### LAND ACQUISITION (MINES) ACT, 1885.

The number of original cases disposed of altogether at the end of 1922 stood at 464, twenty-three of which were cases disposed of during the year.

#### REGISTER OF APPLICANTS FOR EMPLOYMENT HOLDING FIRST OR SECOND CLASS COLLIERY MANAGERS' CERTIFICATES.

Numerous applications for employment in coal mines are received in the office of the Chief Inspector of Mines. For the convenience of mineowners and managers a register of the names of applicants holding first or second class colliery managers' certificates has been opened in the Chief Inspector's office, and may be inspected on request.

#### OFFICIAL DUTIES, 1922.

Mr. R. R. Simpson was Chief Inspector of Mines throughout the year.

Mr. H. Lancaster was Inspector of Mines, No. 2 Circle, up to 17th June 1922, when he was permitted to resign his appointment.

Mr. D. Penman was Inspector of Mines, No. 1 Circle, throughout the year.

Mr. J. H. Lang was Junior Inspector of Mines up to 17th June, after which date until the end of the year he officiated as Inspector of Mines, No. 2 Circle.

Mr. F. B. Kerridge was appointed Electric Inspector of Mines on 30th April 1922.

Mr. W. H. Goldsworthy was Junior Inspector of Mines up to 15th September when he was permitted to resign his appointment.

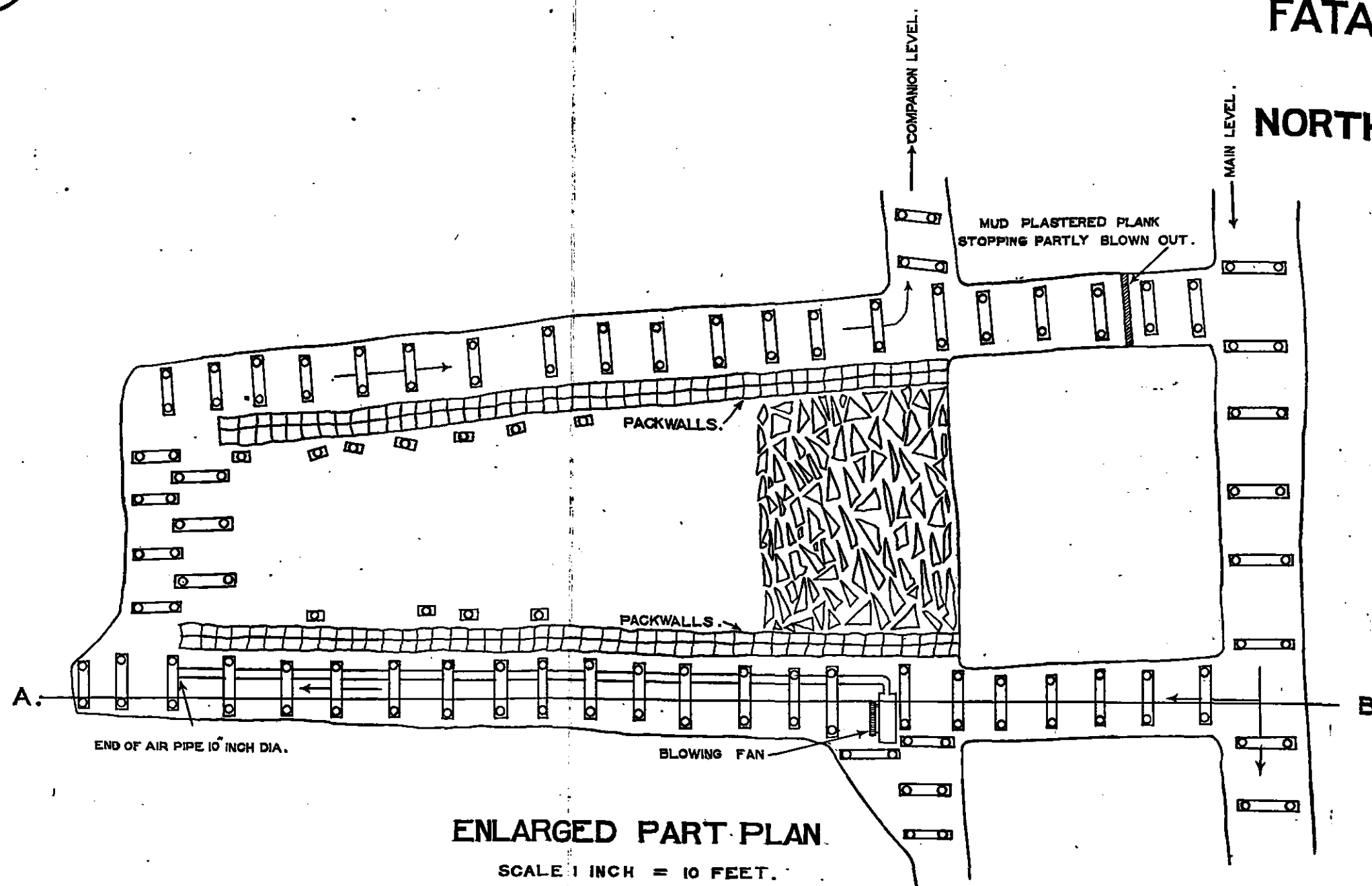
Messrs. G. S. Cameron, W. Kirby and H. R. Tallis were Junior Inspectors of Mines throughout the year.

I have the honour to be,  
SIR,  
Your most obedient servant,

D. PENMAN,

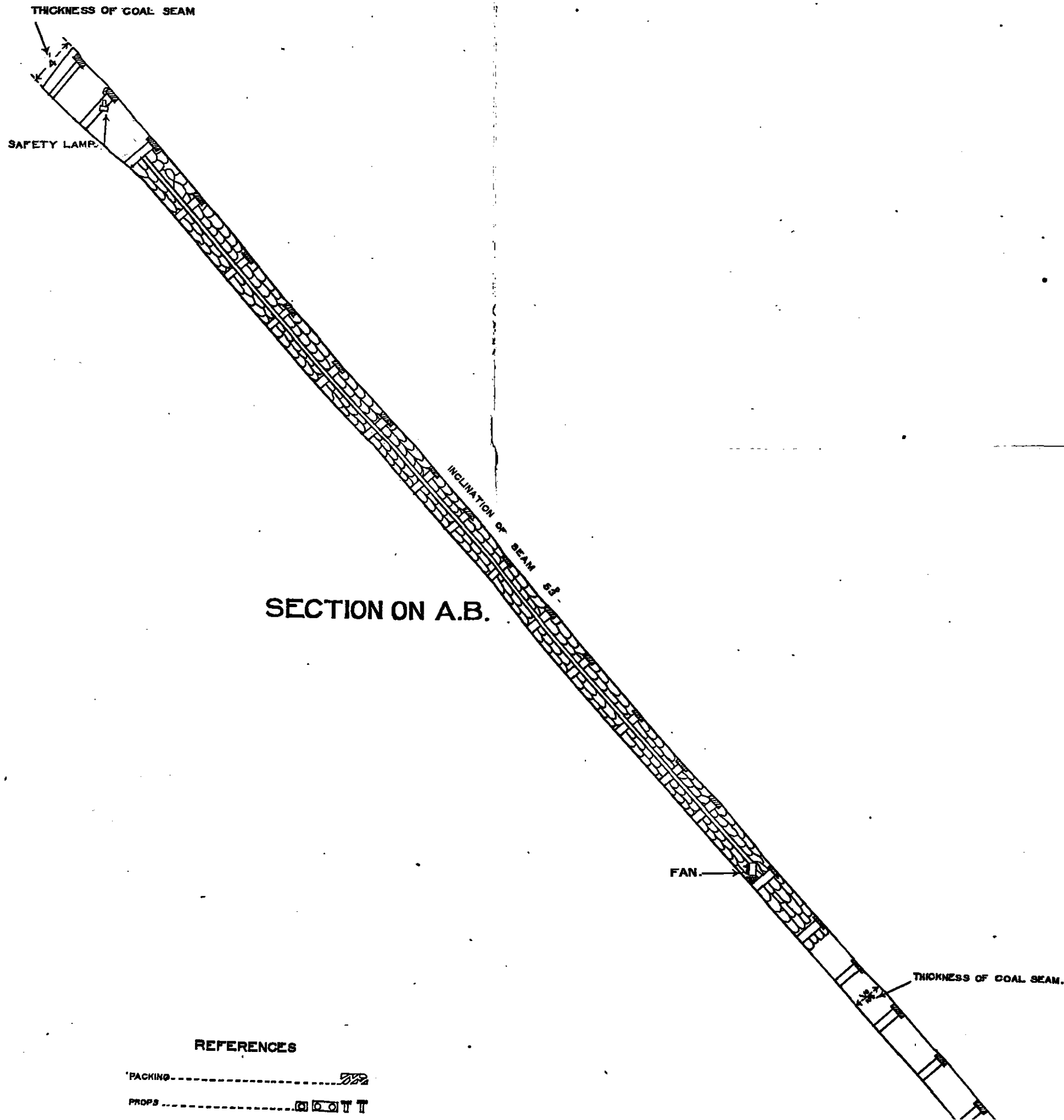
*Offg. Chief Inspector of Mines in India.*

# PLAN ILLUSTRATING REPORT ON FATAL ACCIDENT BY EXPLOSION OF FIRE DAMP AT NORTH WESTERN RAILWAY COMPANY'S KHOST COLLIERY.



ENLARGED PART PLAN

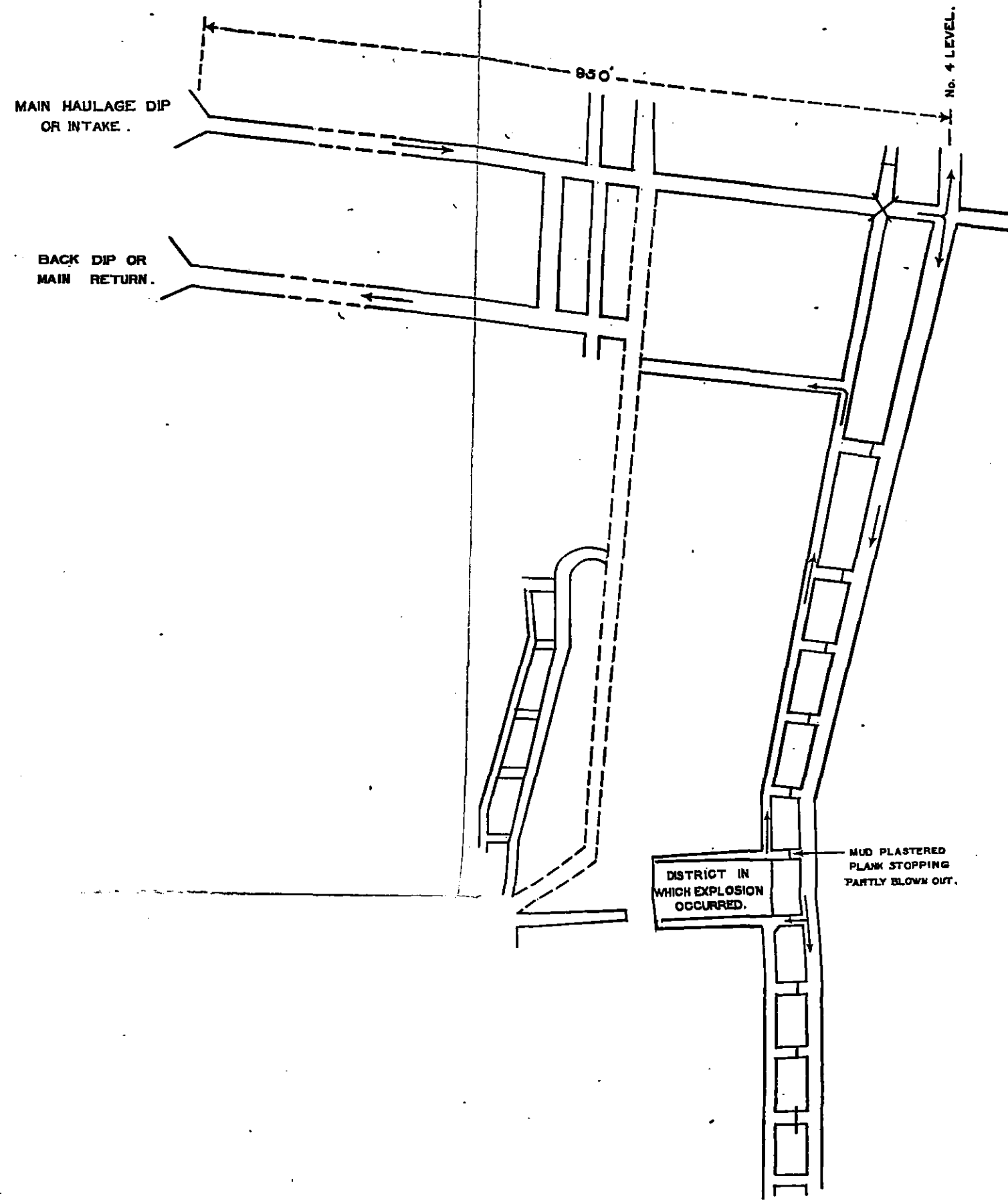
SCALE 1 INCH = 10 FEET.



SECTION ON A.B.

REFERENCES

- \*PACKING
- PROPS

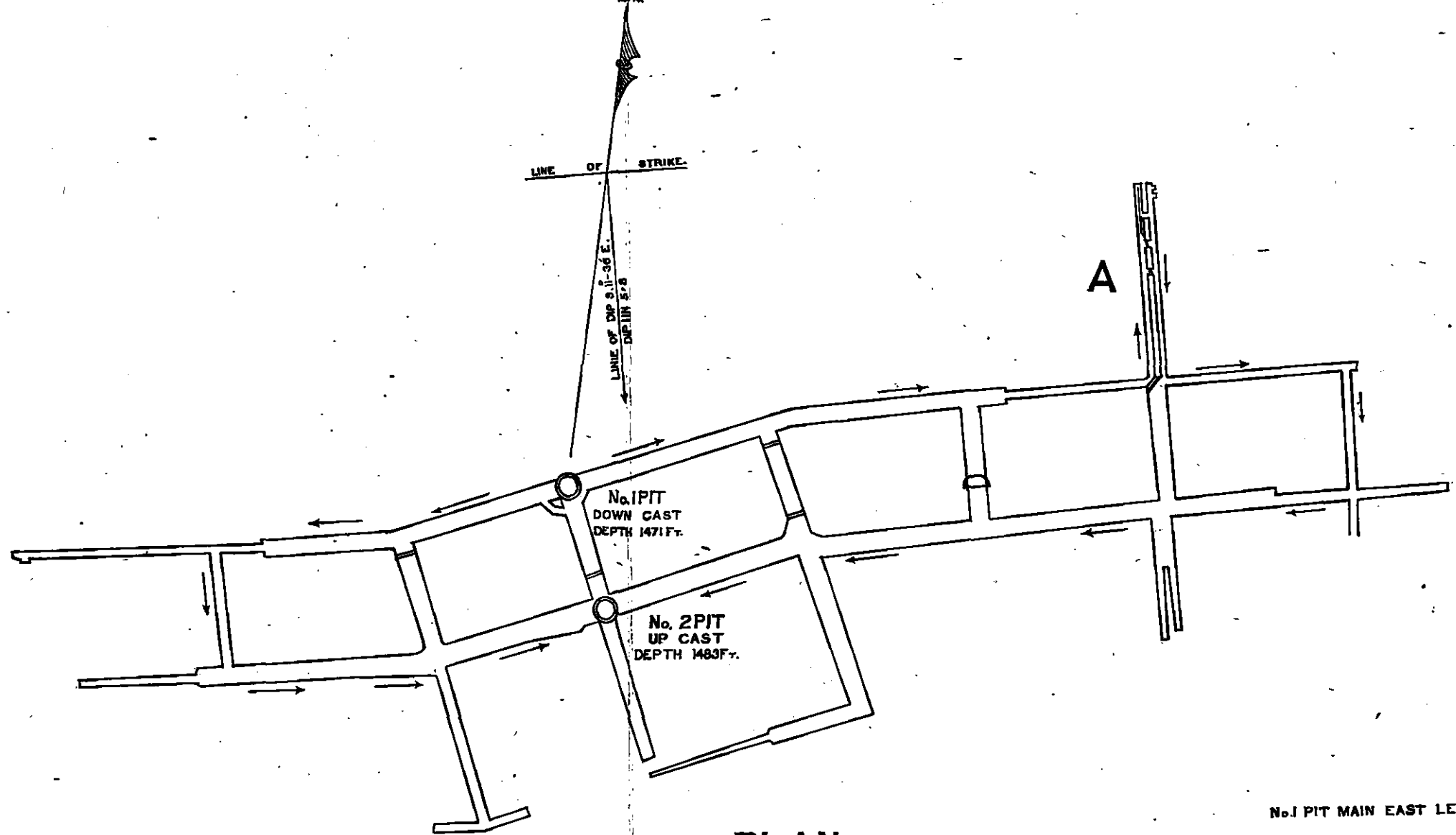


PLAN.

SCALE 1 INCH = 50 FEET.

# PLAN ILLUSTRATING REPORT ON FATAL ACCIDENT BY EXPLOSION OF FIRE DAMP AT THE BENGAL COAL Co. LTD'S. PARBELIA MINE.

SCALE 1 INCH = 100 FEET.



PLAN.

SUPPOSED POINT OF IGNITION.  
DEFECTIVE LAMP FOUND HERE.

BASKETS FOUND HERE.

No. 1 PIT MAIN EAST LEVEL.

BRICK STOPPING WITH BRATTICE CLOTH ABOVE IT.

## ENLARGED PLAN AT A.

SCALE 1 INCH = 20 FEET.

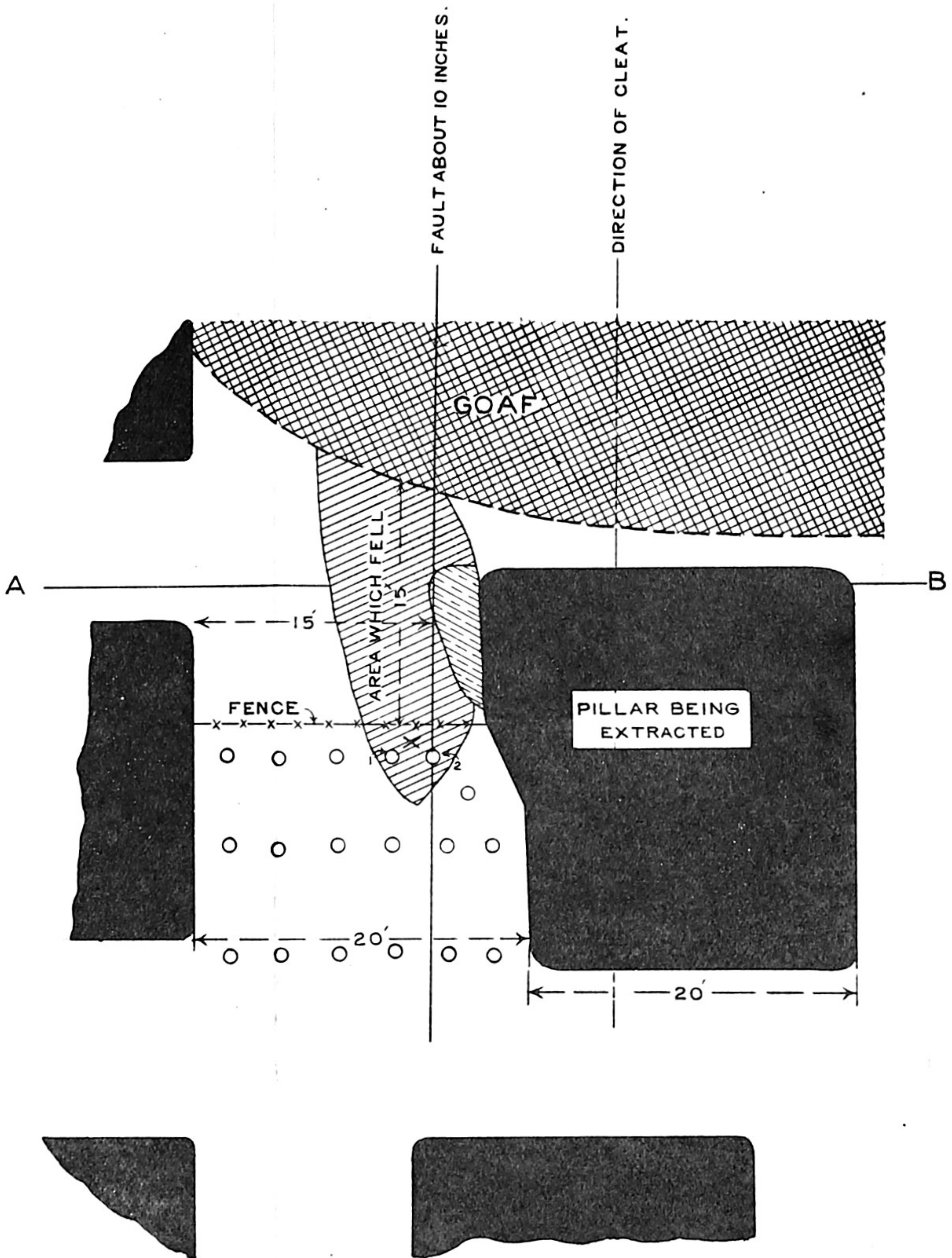
— REFERENCES. —

- DIRECTION OF AIR CURRENT SHOWN THUS →
- STOPPINGS SHOWN THUS - - - - - H
- DOOR SHOWN THUS - - - - - H
- BRATTICE SHOWN THUS - - - - - H
- PERSONS BURNT AND DEAD - - - - - ⊗
- PERSONS INJURED - - - - - X

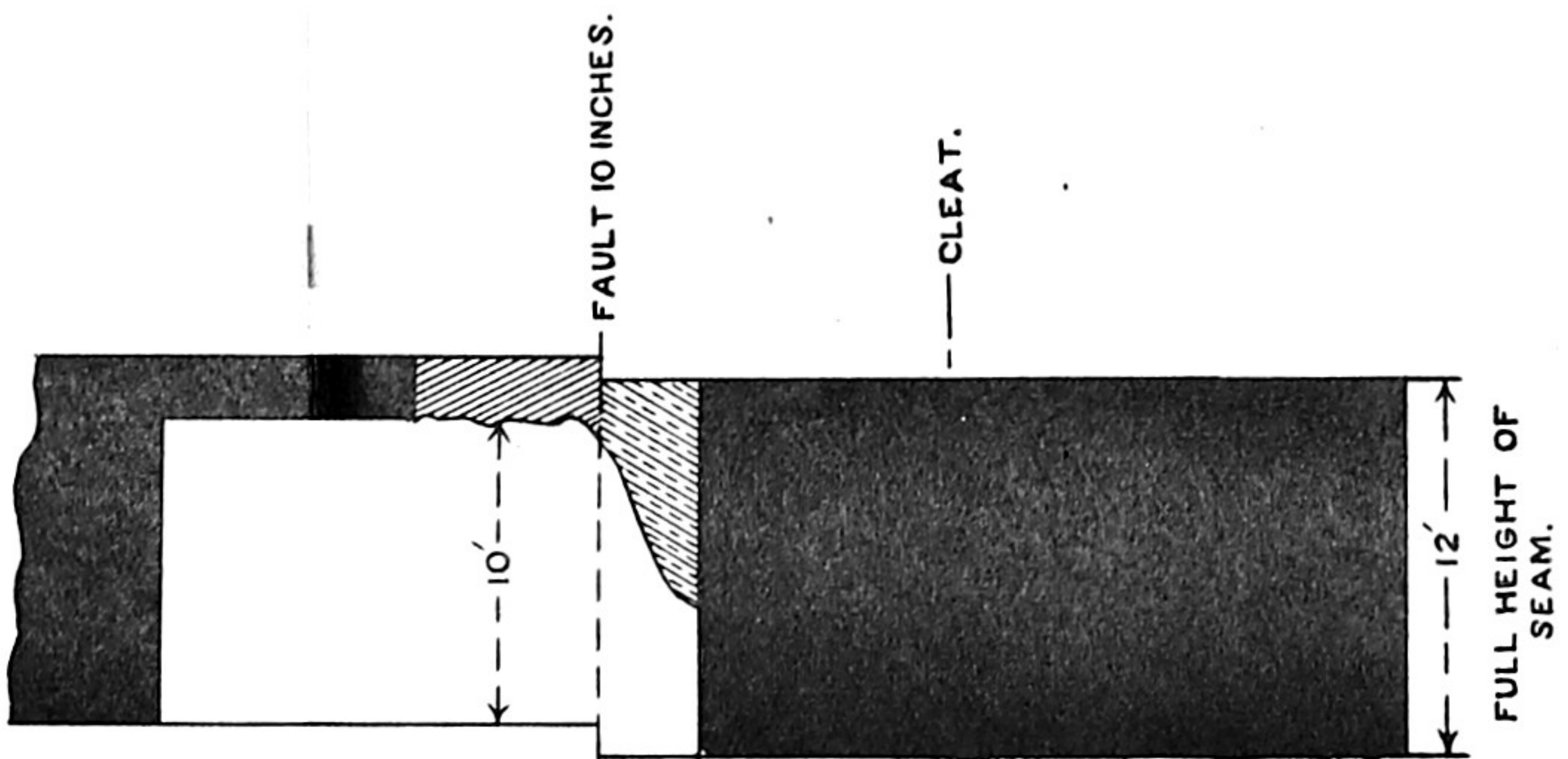


# PLAN ILLUSTRATING REPORT ON FATAL ACCIDENT BY FALL OF ROOF AT THE NORTH WEST COAL CO L<sup>TD</sup>S ENA MINE.

SCALE 1 INCH = 10 FT



PLAN.



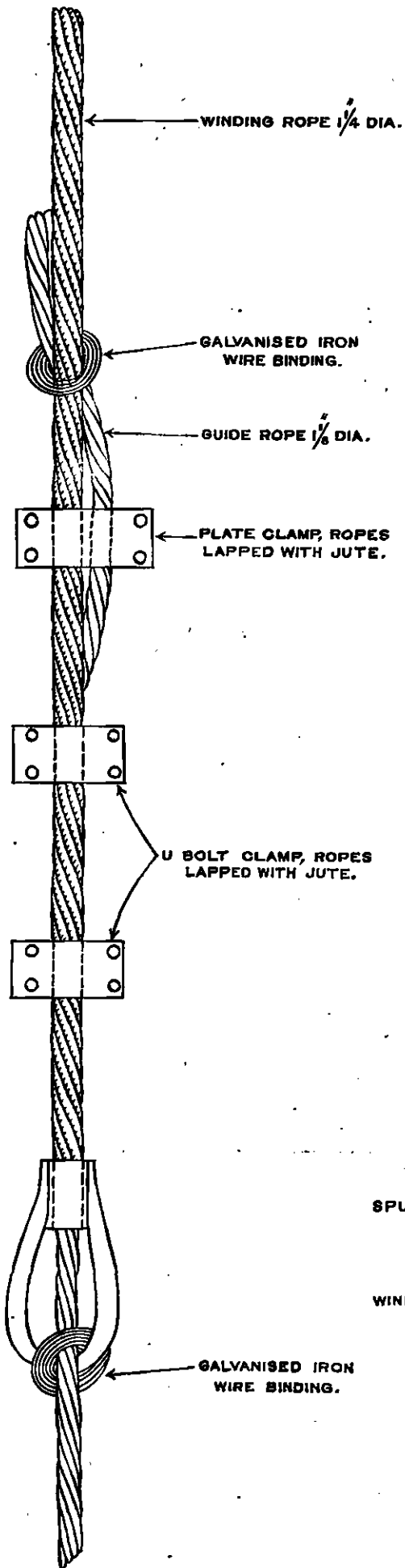
SECTION ON A.B.

REFERENCES

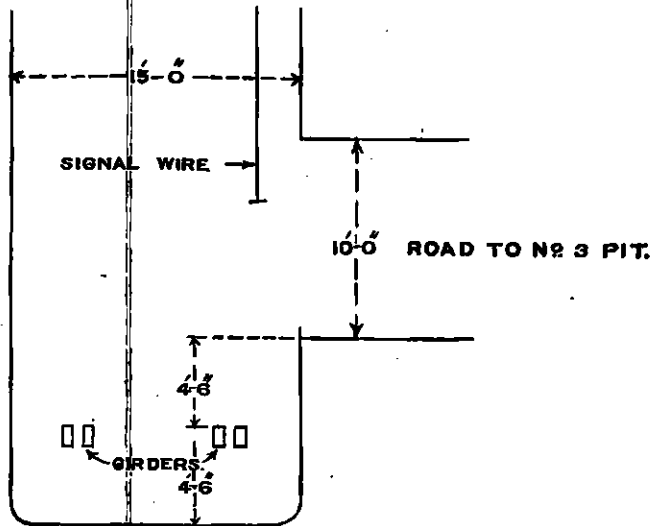
- AREA WHICH FELL
- PORTION OF PILLAR CRUSHED
- PROPS
- POSITION OF DECEASED



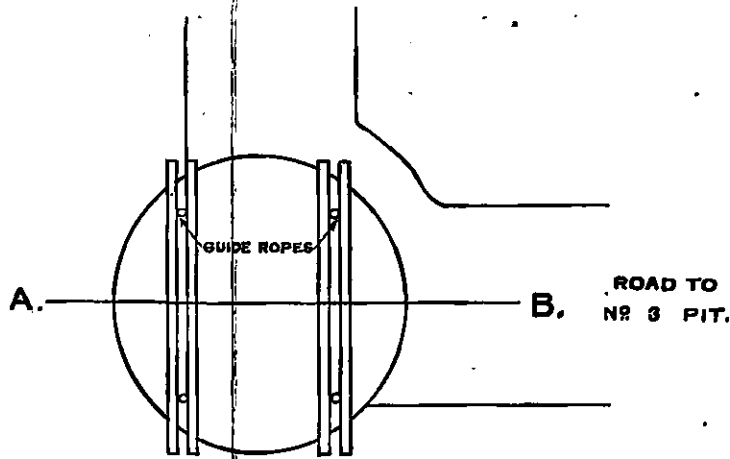
# PLAN ILLUSTRATING REPORT ON FATAL ACCIDENT BY FALL OF GUIDE ROPE IN SHAFT AT THE TATA IRON & STEEL Co. LTD'S MALKERA MINE.



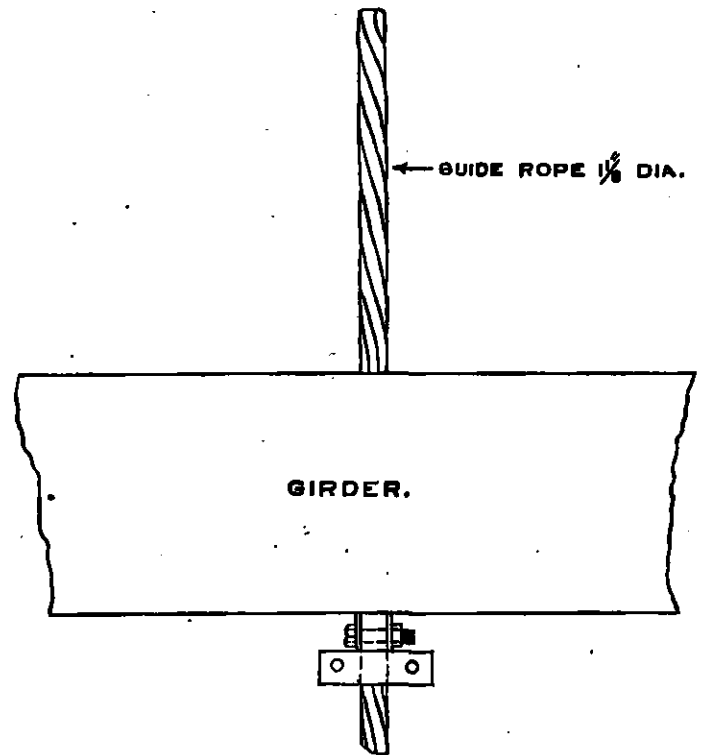
DETAILS OF CLAMPING ROPE AT TOP END. (NOT TO SCALE)



SECTION ON A. B.



PLAN OF SHAFT BOTTOM.



CLAMPS AT BOTTOM END OF GUIDE ROPE.

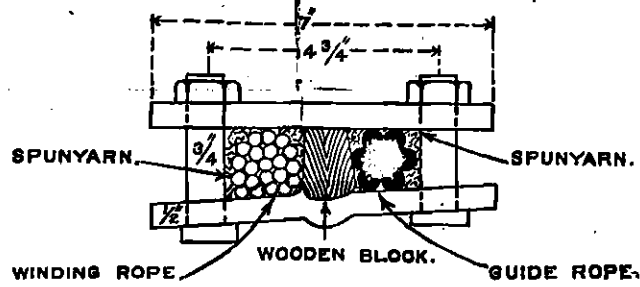
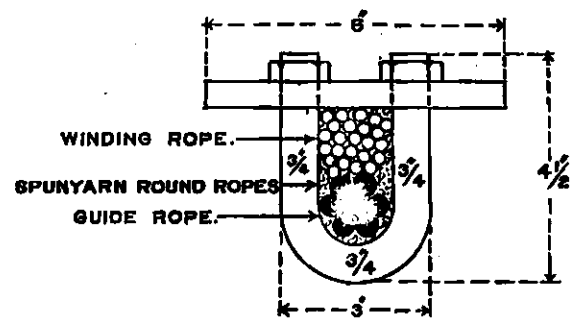


PLATE CLAMP.

SCALE 1/4 INCH = 1 INCH.

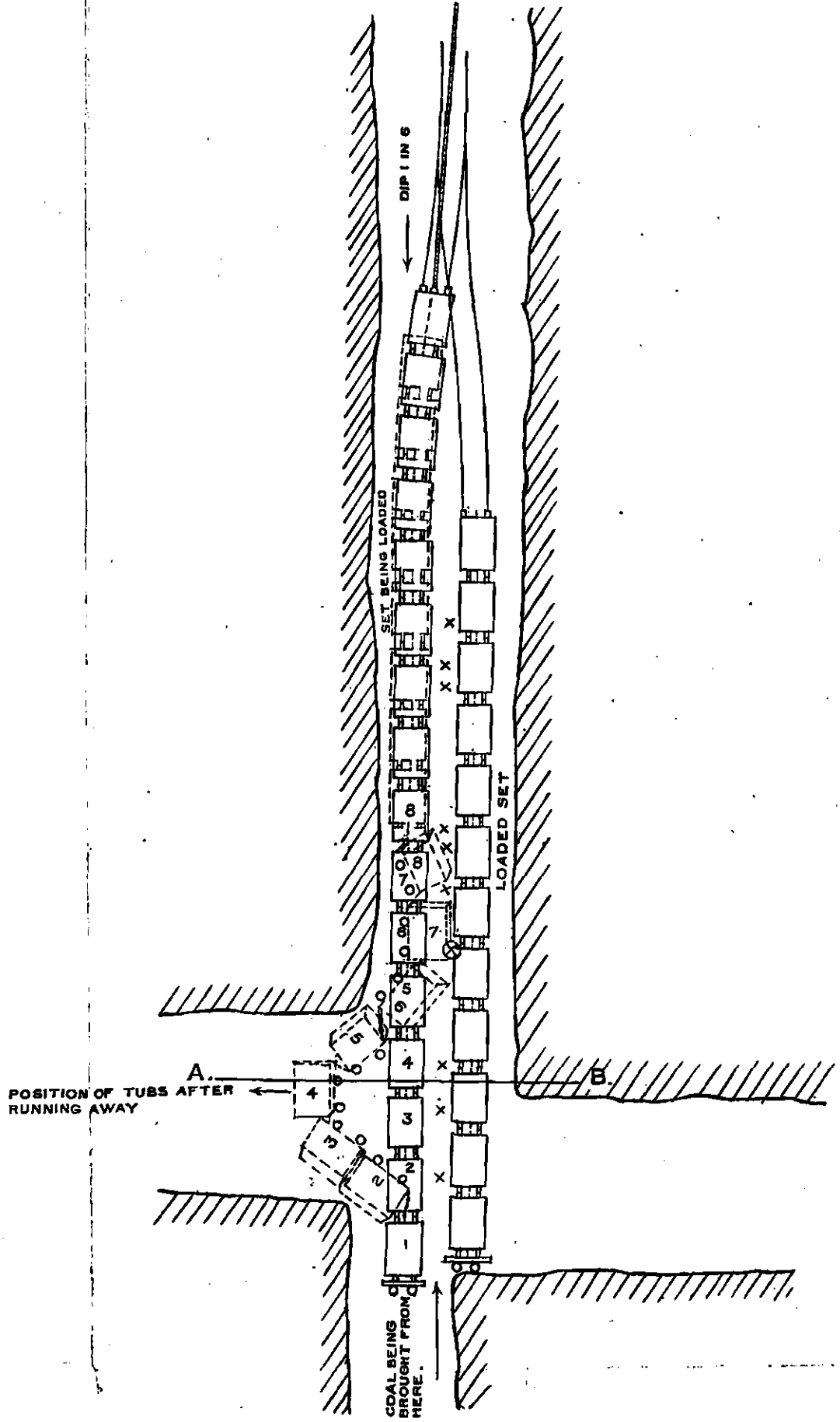


U BOLT CLAMP.

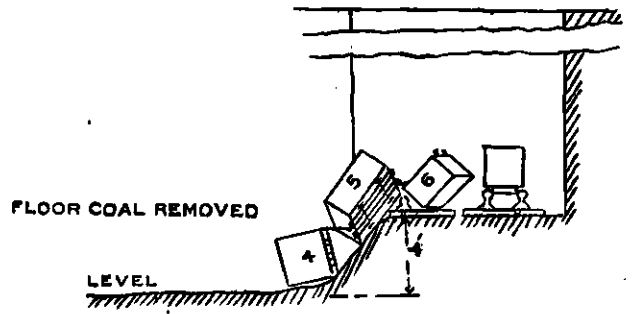
SCALE 1/4 INCH = 1 INCH.

PLAN ILLUSTRATING REPORT ON  
FATAL ACCIDENT BY TUBS ON HAULAGE INCLINE  
AT  
KIRKEND COAL CO'S KIRKEND MINE.

SCALE 1 INCH = 10 FEET.



PLAN.



REFERENCES

- POSITION OF DECEASED ----- ⊗
- POSITION OF OTHER MINERS ----- X

SECTION ON A.B.

## APPENDIX I.

### STATISTICS OF MINES AND MINERALS.

Table No. 1.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1922.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.		NUMBER OF MINES INSPECTED DURING THE YEAR.		TOTAL OUTPUT. Tons.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY IN AND ABOUT THE MINES.															
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.				ABOVE GROUND.				Total below ground.	Total above ground.	Grand total below and above ground.					
								MINERS.		OTHERS.		Adult males.	Adult females.	Children.	Total.				Adult males.	Adult females.	Children.	Total.	
			Adult males.	Adult females.	Children.	Total.		Adult males.	Adult females.	Children.	Total.												
<b>A.—COAL.</b>																							
Assam	Lakhimpur	5	4	1	5	13	291,747	1,878	220	..	2,098	..	..	..	..	2,098	671	199	83	953	3,051		
	Naga Hills	1	..	1	1	2	55,003	263	..	..	263	..	..	..	..	263	274	16	3	293	556		
	Sibsagar	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
	<b>TOTAL</b>	6	4	2	6	15	347,650	2,141	220	..	2,361	..	..	..	..	2,361	945	215	86	1,246	3,607		
Baluchistan	Kalat	1	..	1	..	..	80	20	..	..	20	5	..	..	5	25	5	..	..	5	30		
	Loralai	1	..	1	..	..	42	15	..	..	15	..	..	..	15	20	..	..	..	20	35		
	Quetta-Pishin	8	..	8	..	..	6,644	89	..	..	89	9	..	..	9	98	59	..	..	59	157		
	Sibi-Khost	6	1	5	2	6	33,866	290	..	..	290	298	..	..	298	588	433	..	11	444	1,032		
<b>TOTAL</b>	16	1	15	2	6	40,032	414	..	..	414	312	..	..	312	720	517	..	11	528	1,254			
Bengal	Bankura, Raniganj	4	..	4	3	4	6,991	60	24	..	74	10	1	..	11	85	33	43	..	70	161		
	Birbhum	8	4	4	..	..	12,154	110	4	..	114	34	23	..	57	171	101	75	3	179	350		
	Burdwan	271	214	57	223	458	4,300,951	11,646	5,820	17	17,482	5,729	3,405	47	9,181	26,673	11,243	6,146	320	17,709	44,382		
	<b>TOTAL</b>	283	218	65	226	462	4,328,986	11,806	5,857	17	17,680	5,773	3,429	47	9,249	26,920	11,377	6,264	323	17,904	44,808		

APPENDIX I—contd.

STATISTICS OF MINES AND MINERALS—contd.

Table No. 1—contd.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals during the year 1922—contd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.		NUMBER OF MINES INSPECTED DURING THE YEAR.		TOTAL OUTPUT. Tons.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY IN AND ABOUT THE MINES.															
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.				Total below ground.	ABOVE GROUND.				Grand total below and above ground.						
								MINERS.		OTHERS.			Adult males.	Adult females.	Children.	Total.							
			Adult males.	Adult females.	Children.	Total.		Adult males.	Adult females.	Children.	Total.												
Bihar and Orissa	<b>A—COAL—contd.</b>																						
	Hazaribagh	Dokaro	6	3	3	3	6	1,037.17	2,445	2,638	1	5,084	173	130	..	312	5,300	2,838	1,330	383	4,551	9,047	
		Girdih	13	4	9	11	21	659,101	3,007	1,272	14	4,353	68	14	14	90	4,440	1,815	940	25	2,780	7,220	
		Jharia	11	5	6	12	17	187,758	483	370	70	933	04	27	10	101	1,036	807	462	106	1,465	2,501	
		Ramgarh	2	..	2	..	..	4,585	24	40	20	84	..	..	..	..	84	46	7	24	77	161	
		Manbhum	Jharia	300	199	191	360	696	9,748,541	20,762	16,755	179	37,090	8,430	3,802	81	12,313	50,000	22,755	12,315	1,565	30,635	86,644
			Raniganj	124	21	103	104	170	849,951	2,867	1,816	3	4,186	865	505	16	1,386	5,572	2,825	1,613	127	4,565	10,137
		Palamanu, Daltonganj	1	1	..	1	1	31,938	60	52	10	122	34	7	..	41	163	82	19	13	114	277	
		Sambalpur, Hingir-Rampur	2	1	1	1	1	68,618	89	..	..	89	189	200	32	421	510	201	72	14	287	797	
		Sonthal Paraganas.	Jaitty	6	3	2	1	2	96,612	443	191	..	634	166	67	..	233	867	261	114	..	375	1,242
Raniganj			7	4	3	3	3	24,277	125	93	4	222	25	27	..	62	274	239	177	25	441	715	
	TOTAL	561	241	320	505	1,126	12,708,527	30,365	22,733	307	63,405	10,014	4,788	153	14,955	68,300	31,959	17,049	2,282	51,290	119,650		
Central Provinces	Betul	3	..	3	..	..	994	14	11	3	28	19	28	..	47	76	33	21	4	68	133		
	Chanda, Ballarpur	8	7	1	4	6	132,680	844	10	..	854	616	205	1	912	1,766	674	149	61	884	2,650		
	Chhindwara, Pench Valley	48	11	37	10	11	453,484	1,862	483	165	2,510	809	1,470	94	2,433	4,043	1,718	1,140	485	3,343	8,286		
	Narsinghpur, Mohpani	1	1	..	1	4	94,996	306	..	..	306	609	418	..	1,027	1,333	546	157	..	703	2,036		
	Xotmal	2	1	1	..	..	3,687	10	..	..	10	3	11	..	14	24	38	33	..	71	95		
	TOTAL	62	20	42	15	21	675,841	3,036	504	168	3,708	2,116	2,222	95	4,433	8,141	3,009	1,500	550	5,059	13,200		



APPENDIX I—contd.

STATISTICS OF MINES AND MINERALS—contd.

Table No. 1—contd.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1922—contd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.		NUMBER OF MINES INSPECTED DURING THE YEAR.		TOTAL OUTPUT.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY IN AND ABOUT THE MINES.													
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.								Total below ground.	ABOVE GROUND.				Grand total below and above ground.
								MINERS.				OTHERS.					Adult males.	Adult females.	Children.	Total above ground.	
			Adult males.	Adult females.	Children.	Total.		Adult males.	Adult females.	Children.	Total.										
Bombay	Panch Mahals	2	..	2	C-MANGANESE ORE.		39,703	076	476	..	1,152	67	1	..	68	1,220	210	68	117	365	1,605
					Tons.	2															
Central Provinces.	Balaghat	22	1	21	9	9	148,823	1,461	1,686	81	3,228	60	..	..	60	3,288	510	470	87	1,067	4,355
	Bhandara	5	..	5	1	2	35,413	235	306	44	645	3	..	..	3	648	155	143	32	330	978
	Chhindwara	1	1	..	1	1	33,478	280	406	9	695	..	..	..	..	695	146	76	41	263	958
	Jubbulpore	1	..	1	..	..	..	..	..	..	..	6	..	..	6	6	14	6	..	20	26
	Nagpur	20	..	18	10	11	127,065	1,159	1,354	23	2,536	58	3	..	61	2,597	594	362	32	988	3,585
	TOTAL	49	4	45	23	25	344,774	3,135	3,812	157	7,104	127	3	..	130	7,234	1,619	1,057	192	2,668	9,902
Madras	Vizagapatam	3	..	3	3	3	7,845	223	136	45	404	..	..	..	..	404	100	14	..	114	518
	GRAND TOTAL (MANGANESE) FOR 1922	54	4	50	26	28	392,322	4,034	4,424	202	8,660	104	4	..	108	8,858	1,729	1,129	300	3,167	12,025
	" " OF PRECEDING YEAR	65	4	61	42	48	534,757	..	..	..	..	..	..	..	..	13,472	1,904	1,673	278	3,855	17,327
	DIFFERENCE	-11	..	-11	-16	-20	-142,435	..	..	..	..	..	..	..	..	-4,614	-175	-544	+31	-688	-5,302

Central Provinces.		D.—LIMESTONE.															
		Tons.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bilaspur	8,903	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jabalpur, Kotal	122,110	20	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
TOTAL	131,722	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Burma.	8,735	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Northern Shan States.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
GRAND TOTAL (LIMESTONE) FOR 1922.	140,507	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
" " OF PRECEDING YEAR	284,254	21	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
DIFFERENCE	-143,747	-1	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11
E.—SALT.																	
Jhelum	149,277	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mianwali	16,684	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Shahpur	22,106	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
GRAND TOTAL (SALT) FOR 1922.	187,157	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" " OF PRECEDING YEAR	123,084	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
DIFFERENCE	+64,073	+6	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
F.—GEMS.																	
(a) Rubies.																	
GRAND 93,978																	
(b) Sapphire.																	
GRAND 1,162,462																	
(c) Spinel.																	
GRAND 35,050																	
TOTAL																	
GRAND 1,291,490																	
(d) Beryl.																	
GRAND 281,100																	
" " OF PRECEDING YEAR																	
GRAND 290,215																	
DIFFERENCE																	
-9,825																	

APPENDIX I—contd.

STATISTICS OF MINES AND MINERALS—contd.

Table No. 1—contd.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1922—contd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.		NUMBER OF MINES INSPECTED DURING THE YEAR.		TOTAL OUTPUT	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY IN AND ABOUT THE MINES.													
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.						ABOVE GROUND.			Total above ground.	Grand total below and above ground.			
								MINERS.				OTHERS.		Total below ground.	Adult males.	Adult females.			Children.		
								Adult males.	Adult females.	Children.	Total.	Adult males.	Adult females.							Children.	Total.
Bihar and Orissa . . . . .	Monghyr . . . . .	5	..	5	..	..	Tons. 2,624	142	103	61	306	..	..	..	..	306	114	..	..	114	420
Punjab . . . . .	Gurdaspur . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Gurgaon . . . . .	6	..	0	4	4	33,661	25	..	4	29	66	..	34	100	129	10	..	6	25	154
	Kangra . . . . .	4	..	4	..	..	4,936	95	..	..	95	..	..	..	..	95	38	23	8	69	164
	TOTAL . . . . .	10	..	10	4	4	35,000	120	..	4	124	66	..	34	100	224	57	23	14	94	318
	GRAND TOTAL (SLATE) FOR 1922	15	..	15	4	4	38,224	262	103	65	430	66	..	34	100	530	171	23	14	208	738
	" " OF PRECEDING YEAR.	18	..	16	0	0	50,337	..	..	..	..	..	..	..	..	613	195	20	20	235	848
	DIFFERENCE . . . . .	-3	..	-3	-5	-5	-12,113	..	..	..	..	..	..	..	..	-83	-24	+3	-6	-27	-110
Bihar and Orissa . . . . .	Singhbhum . . . . .	..	..	..	..	..	Ozs. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madras . . . . .	Anantapur . . . . .	4	3	1	1	1	8,388	58	..	..	58	48	..	..	48	106	203	70	31	403	509
	GRAND TOTAL (GOLD) FOR 1922	4	3	1	1	1	8,388	58	..	..	58	48	..	..	48	106	203	70	31	403	509
	" " OF PRECEDING YEAR . . . . .	4	4	..	2	2	10,108	..	..	..	..	..	..	..	..	101	322	82	43	447	548
	DIFFERENCE . . . . .	..	-1	+1	-1	-1	-1,720	..	..	..	..	..	..	..	..	+5	-20	-3	-12	-44	-39



		I.—IRON ORE.																				
							Tons.															
Burma.	Mandalay . . . . .	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46	46	
	Northern Shan States . . . . .	3	..	3	..	..	..	..	..	..	225	17	..	242	242	122	..	..	122	364		
	TOTAL . . . . .	4	..	4	..	..	..	..	..	..	225	17	..	242	242	168	..	..	168	410		
Bihar and Orissa . . . . .	Singbhum . . . . .	5	..	5	3	7	212,763	605	495	30	1,130	..	..	..	..	1,130	382	162	56	600	1,730	
Rajputana . . . . .	Ajmer-Merwara . . . . .	1	1	..	..	..	..	7	..	..	7	3	..	..	3	10	20	..	..	20	30	
GRAND TOTAL (IRON ORE) FOR 1922 . . . . .		10	1	9	3	7	240,383	612	495	30	1,137	228	17	..	245	1,382	570	162	56	788	2,170	
" " OF PRECEDING YEAR . . . . .		9	2	7	4	4	236,190	..	..	..	..	..	..	..	..	1,954	839	276	11	1,126	3,080	
DIFFERENCE . . . . .		+1	-1	+2	-1	+3	-43,807	..	..	..	..	..	..	..	..	-572	-269	-114	+45	-338	-910	
		J.—WOLFRAM ORE.																				
							Tons.															
Burma.	Mergul . . . . .	..	..	..	..	..	31	Labour figures included with those for Tin ore					..	..	..	..	..	..	..	..	..	..
	Tavoy . . . . .	3	..	3	..	..	938	107	..	..	167	..	..	..	..	167	32	..	..	32	199	
	Thaton . . . . .	..	..	..	..	..	..	Labour figures included with those for Tin ore.					..	..	..	..	..	..	..	..	..	..
TOTAL . . . . .		3	..	3	..	..	942	167	..	..	167	..	..	..	..	167	32	..	..	32	199	
GRAND TOTAL (WOLFRAM) FOR 1922 . . . . .		3	..	3	..	..	942	167	..	..	167	..	..	..	..	167	32	..	..	32	199	
" " OF PRECEDING YEAR . . . . .		15	2	13	11	11	884	..	..	..	..	..	..	..	..	1,708	329	7	..	336	2,044	
DIFFERENCE . . . . .		-12	-2	-10	-11	-11	+571	..	..	..	..	..	..	..	..	-1,541	-297	-7	..	-304	1,845	
		K.—MAGNESITE.																				
Madras . . . . .	Salem . . . . .	2	..	2	1	1	Tons. 18,417	209	248	408	925	..	..	..	..	925	112	..	40	152	1,077	
	TOTAL OF PRECEDING YEAR . . . . .	2	..	2	..	..	17,152	..	..	..	..	..	..	..	..	798	100	..	32	141	939	
	DIFFERENCE . . . . .	..	..	..	+1	+1	+1,265	..	..	..	..	..	..	..	..	+127	+3	..	+8	+11	+138	

APPENDIX I—contd.

STATISTICS OF MINES AND MINERALS—contd.

Table No. 1—contd.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals during the year 1922—contd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES		NUMBER OF MINES INSPECTED DURING THE YEAR.		TOTAL OUTPUT.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY IN AND ABOUT THE MINES.														
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.				Total below ground.	ABOVE GROUND.				Grand Total below and above ground.					
								MINERS.		OTHERS.			Adult males.	Adult females.	Children.	Total.						
			Adult males.	Adult females.	Children.	Total.		Adult males.	Adult females.	Children.	Total.											
<b>L.—CHROMITE ORE.</b>																						
Baluchistan . . . . .	Zhob . . . . .	22	..	22	..	..	Tons. 18,548	141	..	..	141	..	..	..	..	141	143	..	..	143	284	
Bihar and Orissa . . . . .	Singhbhum . . . . .	3	..	3	1	1	1,147	68	65	20	143	..	..	..	..	143	26	22	4	52	195	
	<b>GRAND TOTAL (CHROMITE ORE) FOR 1922.</b>	25	..	25	1	1	19,635	209	65	20	284	..	..	..	..	284	169	22	4	195	479	
	<b>TOTAL OF PRECEDING YEAR . . . . .</b>	24	..	24	..	..	27,727	..	..	..	..	..	..	..	..	540	151	44	17	212	758	
	<b>DIFFERENCE . . . . .</b>	+1	..	+1	+1	+1	-8,092	..	..	..	..	..	..	..	..	-262	+18	-22	-13	-17	-279	
<b>M.—COPPER ORE.</b>																						
Bihar and Orissa . . . . .	Singhbhum . . . . .	4	2	2	2	4	Tons. 30,764	813	3	..	816	4	..	..	4	820	1,321	525	78	1,924	2,744	
Central Provinces . . . . .	Balaghat . . . . .	1	..	1	..	..	..	8	3	..	11	..	..	..	..	11	8	1	1	10	21	
	<b>GRAND TOTAL (COPPER ORE) FOR 1922.</b>	5	2	3	2	4	30,764	821	6	..	827	4	..	..	4	831	1,329	526	79	1,934	2,765	
	<b>" " OF PRECEDING YEAR . . . . .</b>	4	2	2	2	2	32,560	..	..	..	..	..	..	..	..	738	1,304	677	74	2,145	2,883	
	<b>DIFFERENCE . . . . .</b>	+1	..	+1	..	+2	-1,796	..	..	..	..	..	..	..	..	+93	-65	-151	+5	-211	-118	
<b>N.—BAUXITE.</b>																						
Central Provinces . . . . .	Jubbulpore . . . . .	1	..	1	..	..	Cwt. 79,740	23	30	..	53	5	..	..	5	58	24	33	5	62	120	
	<b>TOTAL OF PRECEDING YEAR . . . . .</b>	1	1	..	1	1	93,060	..	..	..	..	..	..	..	..	208	9	4	..	13	221	
	<b>DIFFERENCE . . . . .</b>	..	-1	+1	-1	-1	-13,320	..	..	..	..	..	..	..	..	-150	+15	+29	+5	+49	-101	

		O.—CLAY.																			
							Tons.														
Bihar and Orissa . . . . .	Manbhum . . . . .	1	..	1	..	..	1,231	2	2	..	4	..	..	..	..	4	2	4	..	6	10
	Palamau . . . . .	1	..	1	..	..	1,927	8	8	5	21	..	..	..	..	21	20	10	6	36	57
	TOTAL . . . . .	2	..	2	..	..	3,158	10	10	5	25	..	..	..	..	25	22	14	6	42	67
Central Provinces . . . . .	Jubbulpore . . . . .	5	2	3	2	2	46,802	149	312	8	469	2	100	..	102	571	40	..	8	48	610
Delhi . . . . .	Delhi . . . . .	5	..	5	3	3	7,958	24	..	..	24	12	..	..	12	36	29	1	..	30	66
	GRAND TOTAL (CLAY) FOR 1922 . . . . .	12	2	10	5	5	57,918	183	322	13	518	14	100	..	114	632	91	15	14	120	762
	TOTAL OF PRECEDING YEAR . . . . .	14	2	12	3	3	87,475	..	..	..	..	..	..	..	..	1,124	208	84	102	394	1,518
	DIFFERENCE . . . . .	-2	..	-2	+2	+2	-29,557	..	..	..	..	..	..	..	..	-492	-117	-69	-88	-274	-766
		P.—LEAD ORE.																			
							Tons.														
Burma . . . . .	Northern Shan States . . . . .	1	1	..	..	..	*172,017	1,161	..	..	1,161	120	..	..	120	1,281	530	..	..	530	1,820
Central Provinces . . . . .	Drug . . . . .	1	..	1	..	..	1	5	12	..	17	..	..	..	..	17	5	12	..	17	34
	GRAND, TOTAL (LEAD ORE) FOR 1922 . . . . .	2	1	1	..	..	172,018	1,166	12	..	1,178	120	..	..	120	1,298	544	12	..	556	1,854
	" " OF PRECEDING YEAR . . . . .	2	1	1	1	4	144,080	..	..	..	..	..	..	..	..	1,009	433	12	..	445	1,454
	DIFFERENCE . . . . .	..	..	..	-1	-4	+27,938	..	..	..	..	..	..	..	..	+289	+111	..	..	+111	+400
		Q.—TIN ORE.																			
							Tons.														
Burma . . . . .	Mergui . . . . .	15	..	15	3	3	181	482	22	3	507	10	4	..	14	521	87	6	..	93	614
	Tavoy . . . . .	27	1	26	8	9	894	1,744	24	4	1,772	..	..	..	..	1,772	520	14	..	534	2,306
	Thaton . . . . .	2	..	2	..	..	5	10	19	..	38	..	..	..	..	38	..	..	..	..	38
	TOTAL . . . . .	44	1	43	11	12	1,080	2,245	65	7	2,317	10	4	..	14	2,331	607	20	..	627	2,958
	TOTAL OF PRECEDING YEAR . . . . .	31	8	28	2	2	1,032	..	..	..	..	..	..	..	..	852	711	45	5	701	1,613
	DIFFERENCE . . . . .	+13	-2	+15	+9	+10	+48	..	..	..	..	..	..	..	..	+1,479	-104	-25	-5	-134	+1,345

\* Amount of refined lead extracted 39,214 tons.

APPENDIX I—contd.

STATISTICS OF MINES AND MINERALS—contd.

Table No. 1—concl'd.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1922—concl'd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES.		NUMBER OF MINES INSPECTED DURING THE YEAR.		TOTAL OUTPUT.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY IN AND ABOUT THE MINES.														
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.				ABOVE GROUND.				Grand total below and above ground.						
								MINERS.		OTHERS.		Total below ground.	Adult males.	Adult females.	Children.		Total above ground.					
			Adult males.	Adult females.	Children.	Total.		Adult males.	Adult females.	Children.	Total.											
			<b>R.—STEATITE.</b>																			
							Cwt.															
Central Provinces . . . . .	Jubbulpore . . . . .	2	..	2	8	3	1,706	18	5	..	23	..	..	..	..	23	3	12	3	18	41	
Madras . . . . .	Nellore . . . . .	2	..	2	2	2	1,408	13	1	..	14	..	..	..	..	14	8	3	..	11	25	
	<b>GRAND TOTAL (STEATITE) FOR 1922</b>	4	..	4	5	5	3,204	31	6	..	37	..	..	..	..	37	11	15	3	20	66	
	<b>" " OF PRECEDING YEAR</b>	6	..	6	3	3	23,430	..	..	..	..	..	..	..	..	134	31	60	21	112	246	
	<b>DIFFERENCE</b>	-2	..	-2	+2	+2	-20,226	..	..	..	..	..	..	..	..	-97	-20	-45	-18	-83	-180	
			<b>S.—FULLERS' EARTH.</b>																			
							Tons.															
Central Provinces . . . . .	Jubbulpore . . . . .	..	..	..	..	..	152															
	<b>TOTAL OF PRECEDING YEAR</b>	..	..	..	..	..	113															
	<b>DIFFERENCE</b>	..	..	..	..	..	+39															
			<b>T.—SILVER.</b>																			
							Ozs.															
Burma . . . . .	Northern Shan States . . . . .	..	..	..	..	..	4,205,584†															
Madras . . . . .	Anantapur . . . . .	..	..	..	..	..	554															
	<b>GRAND TOTAL (SILVER) FOR 1922</b>	..	..	..	..	..	4,206,138	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	<b>" " OF PRECEDING YEAR</b>	..	..	..	..	..	3,555,640	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	<b>DIFFERENCE</b>	..	..	..	..	..	+650,498	..	..	..	..	..	..	..	..	..	..	..	..	..	..	

		U.—APATITE.																				
							Tons.															
Bihar and Orissa . . . . .	Slagbhum . . . . .	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	35	54	..	80	89	
	TOTAL OF PRECEDING YEAR . . . . .	1	..	1	..	..	347	..	..	..	..	..	..	..	..	..	11	8	21	..	29	40
	DIFFERENCE . . . . .	..	..	..	..	..	-347	..	..	..	..	..	..	..	..	..	-11	+27	+33	..	+61	+49
		V.—GRAPHITE.																				
							Cwt.															
Central Provinces . . . . .	Betul . . . . .	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	5	5	
	TOTAL OF PRECEDING YEAR . . . . .	2	..	2	..	..	503	..	..	..	..	..	..	..	..	..	37	4	0	4	14	51
	DIFFERENCE . . . . .	-1	..	-1	..	..	-503	..	..	..	..	..	..	..	..	..	-37	-1	-4	-4	-9	-46
		W.—OCBRE.																				
							Tons.															
Bihar and Orissa . . . . .	Puri . . . . .	1	1	..	..	..	400	8	..	..	8	..	..	..	..	..	8	20	..	..	20	54
Central Provinces . . . . .	Jubbulpore . . . . .	2	..	2	..	..	504	40	9	4	53	..	..	..	..	..	53	105	46	11	162	215
	GRAND TOTAL (OCBRE) FOR 1922 . . . . .	3	1	2	..	..	904	48	9	4	61	..	..	..	..	..	61	131	46	11	188	249
	" " OF PRECEDING YEAR . . . . .	1	1	..	..	..	450	..	..	..	..	..	..	..	..	..	8	25	..	..	25	53
	DIFFERENCE . . . . .	+2	..	+2	..	..	+454	..	..	..	..	..	..	..	..	..	+53	+106	+46	+11	+163	+196
		X.—BARYTES.																				
							Cwt.															
Madras . . . . .	Kurnool . . . . .	3	..	3	..	..	15,785	64	..	0	70	..	..	..	..	..	70	18	80	26	124	194
	TOTAL OF PRECEDING YEAR . . . . .	1	..	1	..	..	9,400	..	..	..	..	..	..	..	..	..	7	2	8	10	20	27
	DIFFERENCE . . . . .	+2	..	+2	..	..	+6,385	..	..	..	..	..	..	..	..	..	+63	+16	+72	+16	+104	+167
	GRAND TOTAL (ALL MINERALS), 1922 . . . . .	1,018	555	1,063	877	1,769	Tons. 19,469,561 Cwt. 128,818 Carats. 231,160 Troy ounces 4,214,526	64,352	87,335	1,761	103,448	20,164	12,012	703	83,560	137,017	57,587	28,850	5,048	91,404	228,511	
	GRAND TOTAL OF PRECEDING YEAR . . . . .	1,741	558	1,183	708	1,233	Tons. 19,940,388½ Cwt. 155,805 Carats. 200,215 Troy ounces 3,565,748	..	..	..	..	..	..	..	..	..	140,200	60,065	34,546	5,153	100,364	249,003
	DIFFERENCE . . . . .	-123	-3	-120	+70	+536	Tons. -470,827½ Cwt. -27,047 Carats. +30,045 Troy ounces +648,778	..	..	..	..	..	..	..	..	..	-12,232	-3,078	-5,687	-105	-9,870	-21,152

65

\* One mine had been closed since September 1921.  
† Extracted from 172,017 tons of lead ore.

APPENDIX I—contd.

Table No. 2.

Analysis of figures relating to output of Coal and Coke.

PROVINCE.	District and mineral field.	COAL.								COKE.							
		Opening stock.	Raisinga.	TOTAL.	Despatches	Colliery consumption.	Coal delivered to coking.	Coal despatched to coke factories.	Closing stock.	OPENING STOCK.		COKE MADE.		DESPATCHES.		CLOSING STOCK.	
										Hard.	Soft.	Hard.	Soft.	Hard.	Soft.	Hard.	Soft.
Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Assam	Lakhimpur . . . . .	516	291,747	292,263	279,645	11,591	995	..	32	..	..	332	..	332	..	..	..
	Naga Hills . . . . .	96	55,903	55,999	55,204	383	..	..	412	..	..	..	..	..	..	..	..
	Sibsagar . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	TOTAL	612	347,650	348,262	334,849	11,974	995	..	444	..	..	332	..	332	..	..	..
Baluchistan	Kalat . . . . .	..	80	80	23	..	..	..	57	..	..	..	..	..	..	..	..
	Loralai . . . . .	..	42	42	28	..	..	..	14	..	..	..	..	..	..	..	..
	Quetta-Pishin . . . . .	1,476	6,644	8,120	6,880	76	..	..	1,164	..	..	..	..	..	..	..	..
	Sibi-Khost . . . . .	2,217	33,866	36,083	25,977	5,852	..	..	4,264	..	..	..	..	..	..	..	..
	TOTAL	3,693	40,632	44,325	32,908	5,928	..	..	5,480	..	..	..	..	..	..	..	..
Bengal	Bankura-Raniganj . . . . .	1,501	6,881	8,382	3,510	3,160	..	..	1,712	..	..	..	..	..	..	..	..
	Birbhum . . . . .	284	12,154	12,438	7,996	4,031	..	..	411	..	..	..	..	..	..	..	..
	Burdwan . . . . .	197,918	4,309,951	4,507,869	3,537,715	735,044	9,809	5,905	225,301	97	70	809	4,009	801	4,302	15	383
	TOTAL	199,703	4,328,986	4,528,680	3,549,221	742,235	9,809	5,905	227,424	97	76	809	4,009	801	4,302	15	383

Bihar and Orissa	Hazaribagh	Bokaro	1,099	1,037,171	1,038,270	1,003,861	19,094	5,942	..	9,373	..	485	..	4,017	..	4,222	..	280	
		Giridih	24,735	659,191	683,836	552,589	67,532	49,637	..	14,078	..	..	42,752	..	42,752	..	..	..	..
		Jharia	32,393	187,758	220,151	149,563	32,132	1,387	532	37,069	128	..	272	458	373	440	27	9	..
		Ramgarh	..	4,505	4,505	4,212	..	..	..	353	..	..	..	..	..	..	..	..	..
	Manbhum	Jharia	1,603,375	9,748,541	11,351,916	7,558,904	1,386,431	289,336	311,377	2,117,245	7,427	10,293	89,270	98,401	79,699	87,006	16,998	21,698	..
		Raniganj	207,541	849,051	1,057,492	531,307	224,676	122,803	15,938	178,646	..	2,216	86	81,263	47	72,267	39	11,212	..
	Palamau-Daltonganj		830	31,933	32,763	16,915	4,805	..	..	11,043	..	..	..	..	..	..	..	..	..
	Sambalpur-Hingir Rampur		..	68,618	68,618	49,013	18,756	..	..	849	..	..	..	..	..	..	..	..	..
	Sonthal Par-ganna.	Jainty	3,759	96,612	100,371	88,860	9,970	..	..	1,541	..	..	..	..	..	..	..	..	..
		Raniganj	4,439	24,277	28,716	10,449	10,258	..	..	8,009	..	..	..	..	..	..	..	..	..
TOTAL		1,878,171	12,708,527	14,586,698	9,965,733	1,773,654	469,105	327,847	2,378,206	7,555	12,904	132,380	184,139	122,871	163,044	17,064	33,099	..	
Burma	Southern Shan States		224	172	396	19	138	184	..	55	..	..	126	..	32	..	94	..	
Central Provinces	Betul	Betul	150	994	1,144	585	..	..	559	..	..	..	..	..	..	..	..	..	
		Chanda	3,809	132,680	130,489	107,706	23,904	..	..	4,879	..	..	..	..	..	..	..	..	
		Chhindwara	9,887	453,484	463,371	408,943	30,881	21	..	23,526	..	..	..	15	..	15	..	..	
		Narsinghpur	3,751	84,998	88,747	74,984	8,156	..	..	5,607	..	..	..	..	..	..	..	..	
		Yeotmal	596	3,687	4,283	3,450	833	..	..	..	..	..	..	..	..	..	..	..	
	TOTAL		18,193	675,841	604,034	595,668	63,774	21	..	34,571	..	..	..	15	..	15	..	..	
Punjab	Jhelum	Jhelum	3,919	47,832	51,751	45,226	3,297	..	..	3,228	..	..	..	..	..	..	..	..	
		Mianwali	1,189	14,301	16,490	13,824	33	..	..	1,633	..	..	..	..	..	..	..	..	
		Shahpur	1,162	5,047	6,209	5,665	40	..	..	504	..	..	..	..	..	..	..	..	
	TOTAL		6,270	67,180	73,450	64,715	3,370	..	..	5,365	..	..	..	..	..	..	..	..	
GRAND TOTAL 1922		2,106,866	18,168,988	20,275,854	14,543,113	2,601,073	480,114	333,752	2,651,554	7,652	12,980	133,521	188,979	124,004	168,383	17,079	33,576	..	

## APPENDIX I—contd.

Table No. 3.

Number of mines opened and closed during the year ending 31st  
December 1922.

Province.	District.	Number of mines opened.	Number of mines closed.	
	<b>A.—COAL.</b>			
ASSAM . . . . .	Lakhimpur . . . . .	..	..	
	Sibsagar . . . . .	..	..	
	TOTAL . . . . .	..	..	
BALUCHISTAN . . . . .	Kalat . . . . .	1	1	
	Loralai . . . . .	1	..	
	Quetta-Pishin . . . . .	1	1	
	Sibi-Khost . . . . .	1	1	
	TOTAL . . . . .	4	3	
BENGAL . . . . .	Bankura . . . . .	1	..	
	Birbhum . . . . .	1	1	
	Burdwan-Raniganj . . . . .	19	14	
	TOTAL . . . . .	21	15	
BIHAR AND ORISSA . . . . .	Hazaribagh . . . . .	Bokaro . . . . .	1	..
		Ramgarh . . . . .	1	..
		Giridih . . . . .	..	1
	Manbhum . . . . .	Jharia . . . . .	27	18
		Raniganj . . . . .	15	0
	Sambalpur-Hingir-Rampur . . . . .	1	..	
	TOTAL . . . . .	45	25	
CENTRAL PROVINCES . . . . .	Betul . . . . .	1	..	
	Chanda . . . . .	3	..	
	Chhindwara . . . . .	13	7	
	Yeotmal . . . . .	..	1	
	TOTAL . . . . .	17	8	



## APPENDIX I—contd.

Table No. 3—contd.

Number of mines opened and closed during the year ending 31st  
December 1922—contd.

Province.	District.	Number of mines opened.	Number of mines closed.
PUNJAB . . . . .	Jhelum . . . . .	8	1
	Shahpur . . . . .	..	1
	TOTAL . . . . .	8	2
	TOTAL (COAL) . . . . .	95	53
BIHAR AND ORISSA . . . . .	<b>B.—MICA.</b>		
	Gaya . . . . .	6	11
	Hazaribagh . . . . .	93	100
	Monghyr . . . . .	1	2
	Sambalpur . . . . .	..	..
TOTAL . . . . .	100	113	
MADRAS . . . . .	Nellore . . . . .	2	29
	Nilgiris . . . . .	..	..
	TOTAL . . . . .	2	29
RAJPUTANA . . . . .	Ajmer-Merwara . . . . .	7	21
	Beawar . . . . .	..	..
	TOTAL . . . . .	7	21
	TOTAL (MICA) . . . . .	109	163
CENTRAL PROVINCES . . . . .	<b>C.—MANGANESE ORE.</b>		
	Balaghat . . . . .	..	3
	Bhandara . . . . .	..	1
	Jubbulpore . . . . .	1	..
	Nagpur . . . . .	2	1
TOTAL (MANGANESE ORE) . . . . .	3	5	

## APPENDIX I—contd.

Table No. 3—contd.

Number of mines opened and closed during the year ending 31st  
December 1922—contd.

Province.	District.	Number of mines opened.	Number of mines closed.	
CENTRAL PROVINCES	<b>D.—LIMESTONE.</b>			
	Bilaspur . . . . .	...	1	
	Jubbulpore . . . . .	3	2	
	TOTAL (LIMESTONE)		3	3
PUNJAB	<b>E.—SALT.</b>			
	Jhelum . . . . .	...	...	
	Mianwali . . . . .	...	...	
	Shahpur . . . . .	...	...	
TOTAL (SALT)		...	...	
BURMA	<b>F.—GEMS.</b>			
	Katha . . . . .	1	...	
RAJPUTANA	Ajmer-Merwara . . . . .	...	2	
	TOTAL (GEMS)		1	2
BIHAR AND ORISSA	<b>G.—SLATE.</b>			
	Monghyr . . . . .	...	...	
PUNJAB	Gurdaspur . . . . .	...	...	
	Gurgaon . . . . .	...	1	
	Kangra . . . . .	...	...	
	TOTAL		...	1
	TOTAL (SLATE)		...	1
MADRAS	<b>H.—GOLD.</b>			
	Anantapur . . . . .	1	...	

## APPENDIX I—contd.

Table No. 3—contd.

Number of mines opened and closed during the year ending 31st  
December 1922—contd.

Province.	District.	Number of mines opened.	Number of mines closed.
	<b>I.—IRON ORE.</b>		
BIHAR AND ORISSA . . . . .	Singhbhum . . . . .	1	2
BURMA . . . . .	Northern Shan States . . . . .	1	..
	TOTAL (IRON ORE) . . . . .	2	2
	<b>J.—WOLFRAM ORE.</b>		
BURMA . . . . .	Mergui . . . . .	2	1
	Tavoy . . . . .	..	..
	Thaton . . . . .	..	..
	TOTAL (WOLFRAM ORE) . . . . .	2	1
	<b>K.—COPPER ORE.</b>		
BIHAR AND ORISSA . . . . .	Singhbhum . . . . .	1	..
	<b>L.—BAUXITE.</b>		
CENTRAL PROVINCES . . . . .	Jubbulpore . . . . .	1	..
	<b>M.—CLAY.</b>		
CENTRAL PROVINCES . . . . .	Jubbulpore . . . . .	..	2
DELHI . . . . .	Delhi . . . . .	2	4
	TOTAL (CLAY) . . . . .	2	6
	<b>N.—LEAD ORE.</b>		
CENTRAL PROVINCES . . . . .	Drug . . . . .	1	1
	<b>O.—TIN ORE.</b>		
BURMA . . . . .	Mergui . . . . .	5	5
	Tavoy . . . . .	3	7
	Thaton . . . . .	1	1
	TOTAL (TIN ORE) . . . . .	9	13
	<b>P.—STEATITE.</b>		
CENTRAL PROVINCES . . . . .	Jubbulpore . . . . .	..	1
MADRAS . . . . .	Nellore . . . . .	1	..
	TOTAL (STEATITE) . . . . .	1	1
	<b>Q.—OCHRE.</b>		
CENTRAL PROVINCES . . . . .	Jubbulpore . . . . .	2	1
	<b>R.—BARYTES.</b>		
MADRAS . . . . .	KURNOOL . . . . .	3	1
	GRAND TOTAL (ALL MINES) . . . . .	236	253

## APPENDIX I—contd.

Table No. 4.

The following table shows the fluctuations in the output of the principal minerals raised from mines classed under the Indian Mines Act, 1901. The other minerals raised are gems, slate, magnesite, steatite, clay, bauxite, fuller's earth, graphite, molybdenite, ochre, barytes, apatite, and calcite.

YEAR.	Coal.	Mangan- nese ore.	Mica.	Lime- stone.	Salt.	Gold.	Copper ore.	Wolfram ore.	Iron ore.	Chro- mite ore.	Tin ore.	Lead ore.	Silver.
	Tons.	Tons.	Cwt.	Tons.	Tons.	Troy ozs.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Troy ozs.
1913	15,486,318	637,391	43,650	71,259	138,540	11,019	3,639	1,376	98,371	3,414	87	1½	..
1914	15,727,631	555,672	38,189	146,505	135,518	10,873	4,400	1,570	167,600	3,006	45	3½	..
1915	16,352,480	378,172	24,003	64,179	144,770	24,320	8,010	1,972	129,617	1,465	14	7	612
1916	16,410,082	568,032	35,978	45,200	160,357	23,235	2,671	2,955	142,606	5,004	88	7	1,362
1917	17,326,384	497,052	35,806	82,340	152,542	22,901	20,108	3,066	178,303	17,266	182	..	1,281
1918	19,847,039	415,357	61,572	131,451	158,513	10,916	3,610	3,609	115,890	24,030	602	3	1,169
1919	21,759,727	420,164	41,683	146,810	174,974	11,101	32,756	2,905	191,322	14,067	701	2½	753
1920	17,082,711	582,636	44,666½	161,340	181,092	13,645	28,167	1,733½	148,472	23,123	1,056	128,908	2,870,505
1921	18,358,934	284,254	29,470	284,252	123,084	10,108	32,560	884½	286,190	27,727	1,032	144,089½	3,555,640
1922	18,168,988	392,322	30,089	140,507	187,157	8,388	30,764	942	240,383	19,695	1,080	172,018	4,206,138

Table No. 5.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rates during the years 1913 to 1922 in respect of coal mines under the Indian Mines Act, 1901 :—

YEAR.	Amount of coal raised.	Average number of persons work- ing daily below and above ground.	Number of deaths below and above ground.	DEATH-RATES.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above ground.
	Tons.				
1913	15,486,318	133,042	185	11.05	1.39
1914	15,727,631	137,851	145	9.22	1.05
1915	16,352,480	145,537	166	10.15	1.14
1916	16,410,082	143,459	169	10.20	1.18
1917	17,326,384	153,683	163	9.41	1.06
1918	19,847,039	176,269	197	9.93	1.12
1919	21,759,727	190,052	260	11.95	1.37
1920	17,082,711	175,943	172	10.07	0.98
1921	18,358,934	190,647	257	13.99	1.35
1922	18,168,988	184,355	209	11.50	1.13

APPENDIX I—*concl'd.*

Table No. 6.

The following table shows the aggregate horse power of electric motors installed both on the surface and underground at coal mines under the Indian Mines Act, 1901 :—

COALFIELD.	HORSE POWER ON SURFACE.						HORSE POWER BELOW GROUND.					TOTAL HORSE POWER OF MOTORS INSTALLED.
	Winding.	Ventilation.	Haulage.	Coal washing or screening.	Miscellaneous.	TOTAL.	Haulage.	Pumping.	Portable machinery.	Miscellaneous.	TOTAL.	
Assam . . . . .	..	..	..	..	..	..	..	30.24	..	..	30.24	30.24
Central Provinces . . . . .	..	100	..	50	50	260	20	210	..	..	230	490
Orissah . . . . .	..	..	..	110	58	168	105	850	15	..	970	1,138
Jharia . . . . .	1,645	340	1,065.50	220	842	4,112.50	2,337.50	8,100.50	824	98	11,360	15,481.50
Raniganj . . . . .	1,047	807	835	225	135	4,009	2,295	4,855	374	305	7,829	11,838
TOTAL . . . . .	3,592	1,387	1900.50	605	1,085	5,549.50	4,757.50	14,054.74	1,213	403	20,428.24	28,977.74

Table No. 7.

The following table shows the aggregate horse power of electric motors installed at all mines under the Indian Mines Act, 1901 :—

PROVINCE.	MINERALS WORKED.						TOTAL HORSE POWER OF MOTORS INSTALLED.
	COAL.		CLAY.		SUNDEY MINERALS.		
	Number of mines.	Horse power.	Number of mines.	Horse power.	Number of mines.	Horse power.	
Assam . . . . .	1	30.24	..	..	..	..	30.24
Bengal . . . . .	35	9,285	..	..	..	..	9,285
Bihar and Orissa . . . . .	52	19,172.50	..	..	1	1,677	20,849.50
Burma . . . . .	..	..	..	..	5	2,040	2,040
Central Provinces . . . . .	1	490	2	65	2	149	704
TOTAL . . . . .	80	28,977.74	2	65	8	3,866	32,908.74

Table No. 8.

The following table shows the number of electrically driven coal-cutters at work in coal mines under the Indian Mines Act, 1901 :—

COALFIELD.	MAKER.		TYPE.			TOTAL NUMBER INSTALLED.
	British.	American.	Chain.	Bar.	Percussion.	
Jharia . . . . .	9	13	13	9	..	22
Raniganj . . . . .	3	15	16	1	1	18
TOTAL . . . . .	12	28	29	10	1	40

**APPENDIX II.**  
**ACCIDENTS IN MINES.**

Table No. 1.

List of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1922.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>EXPLOSIONS AND IGNITIONS OF FIRE-DAMP—(21 deaths).</b>						
1	23rd January, 1 P.M.	Jeetpur mine, Jamadoba P. O., Bihar and Orissa.	Bengal Iron Co., Ltd.	Bauri Mahato, (m.), 26, Surveyor's Chainman.	Coal	Whilst a party was surveying in a disused gallery an ignition of firedamp took place. Severe burns were received by three persons, one of whom died twenty-four hours later. Inspection and inquiry made.
2	9th March, 2 P.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway	Gulani Husain, (m.), 25, Coal-cutter. Niaz Gul, (m.), 27, Shoveller. Allah Ditta, (m.), 21, Timberman. Metwali, (m.), 17, Bahran, (m.), 18, Fakir Mahomed, (m.), 16, Abdulla, (m.), 18, Pack-men. Abdur Rahman, (m.), 38, Timberman. Kala, (m.), 23, Pack-man. Pir Khan, (m.), 42, Labourer.	Coal	The thirteen deceased were killed by an explosion of firedamp in a longwall face in a coal seam. Three persons also were severely injured. It was presumed that the gas was ignited by a defective safety lamp. Inspection and inquiry made.

2				Noor Mahomed, (m.), 35, <i>Fan-man.</i> Sujan Singh, (m.), 30, <i>Mine-mate.</i> Mehar, (m.), 20, <i>Fan-man.</i>		(See previous page).
3	27th May, 9 P.M.	Damra mine, Kalipahari P. O., Bengal.	Kalipahari Coal Co., Ltd.	Oyòrali Meah, (m.), 50, <i>Main gallery driver.</i>	Coal	Deceased carrying an open light went into the face of a gallery and ignited an accumulation of firedamp. He sustained serious burns and died sixteen hours later. Inspection and inquiry made.
4	22nd June, 11 A.M.	New Ghusick mine, Kalipahari P. O., Bengal.	New Ghusick Coal Co.	Puron Mahara, (m.), 30, Sona Mahara, (m.), 16, <i>Coal-cutters.</i>	Coal	Whilst the two deceased were working in an advance heading of small dimensions one of them accidentally struck with his pick and broke the glass of his safety lamp. Firedamp was ignited and they received burns from which they died several hours later. Inspection and inquiry made.
5	5th July, 8 A.M.	Parbelia mine, Dishergarh P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Sukar Singh, (m.), 30, Sukar Kahar, (m.), 22, Tipon Singh, (m.), 52, Sukar Singh, (m.), 28, <i>Main gallery drivers.</i>	Coal	Whilst two coal-cutters were at work in the face of a narrow advance heading an explosion of firedamp took place. They were both killed. The flame of the burning gas was propagated by coal dust and extended to a point 136 feet from the face where four miners were sitting. These men were severely burnt, and two of them died within a few days. The initial explosion was due to a defective safety-lamp. The gas was considered to have accumulated because two of the deceased had broken down an air-stopping. Inspection and inquiry made.
<b>FALLS OF ROOF AND SIDES.</b> (a) Falls of roof—(57 deaths).						
6	3rd January, 3-30 P.M.	Dandot mine, Dandot P. O., Punjab.	Rai Sahib Thakur Das, Ramji Das.	Alam Shah, (m.), 34, Saidan Shah, (m.), 36, <i>Coal-cutters.</i>	Coal	The two deceased were crushed by a slab of stone, 3' x 2' x 1½', which fell from a "slip" in the roof—a height of 3 feet. Alam was killed instantly, and Saidan died immediately after he had been extricated. Inspection and inquiry made.
7	5th January, 4 A.M.	Kirkend mine, Kusunda P. O., Bihar and Orissa.	Marine Coal Co., Ltd.	Tilak Suri, (m.), 45, <i>Coal-cutter.</i>	Coal	Deceased and another coal-cutter broke down a fence, and were robbing coal from a barrier when a mass of coal, weighing about 3 tons, fell without warning from two "slips." Deceased was killed instantly. The other man received injuries to his foot. Inspection and inquiry made.
8	6th January, 12-30 P.M.	Ackhalpur mine, Nandi P. O., Bengal.	Hurriladh Coal Co., Ltd.	Shova Kole, (m.), 28, <i>Labourer.</i>	Coal	Deceased entered a fenced area. A piece of roof stone, 5' x 2'6" x 1', fell from a height of 11 feet killing him instantly. Inspection and inquiry made.

45

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<i>(a) Falls of roof—(57 deaths)—contd.</i>						
9	25th January, 3 P.M.	Dishergarh East mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ltd.	Bajan Manjhi, (m.), 21, Coal-cutter.	Coal	Deceased went through a fence, and commenced picking up fallen coal in a goaf, when a mass of roof coal, 3' x 3' x 2', fell upon him from a height of 8 feet. He was killed instantly. Inspection and inquiry made.
10	31st January, 1-30 P.M.	Albion mine, Nawagarh P. O., Bihar and Orissa.	Albion Coal Co., Ltd.	Budhni Turin, (f.), 20, Coal-carrier.	Coal	Deceased was engaged in loading coal in a gallery, 10 feet high, where coal was being taken down from a "slip" in the roof. A piece of coal, 18" x 12" x 9", fell and struck her on the leg, causing a fracture. Gangrene set in, causing fatal results a week later. Inspection and inquiry made.
11	1st February, 10-30 A.M.	Sripore mine, Kalipahari P. O., Bengal.	Lodna Colliery Co., (1920) Ltd.	Tuklal Singh, (m.), 31, Propman.	Coal	A mechanical contrivance for loading coal tubs underground was being moved into a gallery. Deceased was in front guiding it between the timber supports, and several other men were pushing it along from the rear. The front end struck and knocked out one of the timbers and caused a portion of the stone roof to fall. Deceased was struck by a piece of stone, weighing 5 cwt., which fell from a height of 7 feet, and was killed instantly. Inspection and inquiry made.
12	2nd February, 5 P.M.	Jainty Central mine, Karmatar P. O., Bihar and Orissa.	Jainty Central Colliery, Ltd.	Hari Meah, (m.), 35, Coal-cutter.	Coal	Deceased was cutting down a band of stone which overlay the coal in an underground gallery. A piece of stone, 3' x 1' x 1', fell from a height of 5 feet on his foot, causing injuries from which he died ten days later. Inspection and inquiry made.
13	2nd February, 7 P.M.	Jamai-Datla mine, Parasia P. O., Central Provinces.	Rai Sahib Mathura Prosad Motilal & Co.	Mata Badal Kehwat, (m.), 50, Coal-cutter.	Coal	Deceased went into a fenced-off gallery to out coal. While doing so he was killed by a mass of roof stone, 12' x 6' x 9", which fell on him from a height of 4 feet. Inspection and inquiry made.
14	9th February, 3 P.M.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways & Trading Co., Ltd.	Ainwalla Musalman, (m.), 24, Coal-carrier.	Coal	Whilst a gang of loading coolies was filling coal from an "opening" or chamber, 20' x 20' x 13' high, a mass of stone, weighing 1 cwt., fell from a height of 13 feet. Deceased, in attempting to get clear, was crushed against the side, and sustained a fractured spine. He died an hour later. Inspection and inquiry made.



15	12th February, 2 P.M.	Sharigh mine (leases 76 & 83), Sharigh P. O., Baluchistan.	H. Minck	Ali Mahomed, (m.), 25, Coal-cutter.	Coal	Whilst at work in a longwall face deceased was killed by a fall of roof shale, 4 feet in diameter and 2 feet thick. Inspection and inquiry made.
16	17th February, 5 P.M.	Godhur mine, Kuannda P. O., Bihar and Orissa.	S. B. Raha & Son	Akloo Meah, (m.), 20, Coal-cutter.	Coal	Whilst deceased and another man were taking down roof coal, a piece of coal, 12' x 3' x 2', suddenly fell on them, crushing deceased so severely that he died shortly afterwards. The other man was injured. Inspection and inquiry made.
17	26th February, 12 P.M.	Ena mine, Jharia P. O., Bihar and Orissa.	North West Coal Co., Ltd.	Rupan Singh, (m.), 28, Labourer.	Coal	Deceased was measuring the length of a prop, preparatory to setting it, when a portion of the roof suddenly fell and killed him almost instantly. Inspection and inquiry made.
18	9th March, 3 P.M.	Uahbul or Murdar mine, Quetta P. O., Baluchistan.	Sorabji & Co.	Kumbar, (m.), 30, Carpenter.	Coal	Deceased was killed by a fall of roof coal on an underground road.
19	10th March, 6 A.M.	Jotejanaki mine, Toposi P. O., Bengal.	P. K. Chatterjee & Bros.	Petambar Teli, (m.), 25, Coal-cutter.	Coal	Whilst working in an underground gallery, deceased went to look into the goaf behind the pillar where he was at work. A mass of roof coal, weighing 4 or 5 tons, fell from a height of 15 feet, striking him on the head and killing him instantly. Inspection and inquiry made.
20	17th March, 7 A.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Gobindo Bauri, (m.), 32, Pillaring Sirdar.	Coal	Deceased was withdrawing props in a goafed area when a portion of the roof fell and knocked out a prop which hit him on the head with such force that he was killed almost instantly. Inspection and inquiry made.
21	17th March, 10 A.M.	Khewra mine, Khewra P. O., Punjab.	Government of India	Bannu, (f.), 13, Salt-carrier.	Salt	In a chamber, 65 feet high and 40 feet wide, excavated in rock salt, a bridge of rock salt, 8 feet thick and 7 feet wide, had been left to carry a roadway. A small infiltration of water dissolved a portion of the salt and so weakened the support that a mass of several tons of rock salt fell from the underside of the bridge to the floor of the chamber, 45 feet below. Deceased was killed instantly. Inspection and inquiry made.
22	8th April, 10 A.M.	Sudih mine, Sitarampur R. O., Bengal.	Divekar Manilal & Co.	Ratan Dhangur, (m.), 45, Coal-cutter.	Coal	Deceased entered a gallery which had been fenced off on account of the roof being unsafe, and was struck by a portion of the shale roof 7' x 3' x 7", which fell on him from a height of 8 feet. He sustained serious injuries to the skull and died four hours later. Inspection and inquiry made.
23	13th April, 9 A.M.	Bhagaband mine, Jharia P. O., Bihar and Orissa.	Borrea Coal Co., Ltd.	Ghanu Bauri, (m.), 30, Timberman.	Coal	Deceased was withdrawing props in a gallery when some roof stone fell on him. He received injuries from which he died a few hours later. Inspection and inquiry made.
24	14th April, 10-30 A.M.	Bagdigi mine, Jharia P. O., Bihar and Orissa.	Villiers, Ltd.	Suki Kamarin, (f.), 18, Coal-carrier.	Coal	Deceased was employed in a part of the mine where pillars were being extracted. A piece of stone, 5' x 4' x 8", fell upon her from the roof at a height of 7 feet. She was killed instantly. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<i>(a) Falls of roof—(57 deaths)—contd.</i>						
25	26th April, 1 P.M.	South-East Baraboni mine, Charanpur P. O., Bengal.	Maharaja of Cossimbazar	Suki Mejhian, (f.), 25, Coal-carrier.	Coal	A miner was engaged in getting down overhanging roof coal from a pillar in course of extraction when a mass of coal, 15' x 4' x 4', broke away suddenly and swayed out several timbers. Deceased, who was sitting down close by, was struck on the head by one of the falling timbers and died subsequently. Inspection and inquiry made.
26	28th April, 11 P.M.	Keshoram Satgram mine Raniganj P. O., Bengal.	Keshoram Poddar & Co.	Gopi Manjhi, (m.), 14, Labourer.	Coal	Deceased was working in an underground gallery when a piece of shale, 4' x 3' x 6", fell from a height of 7 feet, inflicting injuries which caused death six hours later. Inspection and inquiry made.
27	18th June, 6-30 A.M.	Sijua mine, Sijua P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Fudki Harin, (f.), 35, Coal-carrier.	Coal	Deceased was killed by a thin band of stone falling from a height of 15 feet. Inspection and inquiry made.
28	10th July, 10 A.M.	Noonodih mine, Jamadoba P. O., Bihar and Orissa.	Bengal Iron Co., Ltd.	Chilengi Burhi, (m.), 26, Timberman.	Coal	Deceased and another man were engaged in timbering the roof, when a mass of coal, 21' x 3' x 18", fell from a height of 6½ feet. They were both seriously injured and deceased died within ten days. Inspection and inquiry made.
29	20th July, 3 P.M.	Jotejanaki (Koradanga) mine, Toposi P. O., Bengal.	P. K. Chatterjee & Bros.	Bhola Harec, (m.), 14, Coal-carrier.	Coal	Deceased was one of a gang of coal-cutters engaged in extracting a pillar of coal. They undercut the pillar too far and brought about the fall of roof stone, 4' x 4' x 9" thick, from a height of 14 feet. Deceased was killed instantly. Inspection and inquiry made.
30	26th July 12 A.M.	Golukdih mine, Jharia P. O., Bihar and Orissa.	N. M. Choudhuri	Bheyaram, (m.), 13, Coal-carrier.	Coal	Deceased was loading coal in a gallery when a piece of coal, 3' x 2' x 2', fell from a height of 8 feet. The coal broke on striking the floor, and a piece re-bounded and struck him on the back. He sustained injuries from which he died nineteen days later. Inspection and inquiry made.

31	9th August, 11 A.M.	Bastacolla mine, Jharia P. O., Bihar and Orissa.	New Beerbhoom Coal Co., Ltd.	Pushua Abir, (m.), 40, Coal-cutter.	Coal	Deceased was standing in a working gallery when a block of roof stone, 20' x 15' x 4' thick, fell upon him from a height of 18 feet, and killed him instantly. Inspection and inquiry made.
32	11th August, 9 A.M.	Bhaakajuri mine, Asansol P. O., Bengal.	Burrakur Coal Co., Ltd.	Nobin Hazra, (m.), 22, Payari Hazra, (m.), 21, Propsmen.	Coal	Deceased with a gang of coolies was instructed to retimber a roadway where a fall of roof had taken place. He set the coolies to work removing the fallen roof, but neglected to place temporary supports. A further fall of roof took place, killing deceased and injuring five of the gang, one of whom subsequently died. Inspection and inquiry made.
33	13th August, 12-30 A.M.	Chora mine, Chora P. O., Bengal.	N. C. Sircar & Co.	Moni Mejhian, (f.), 30, Sukhi Mejhian, (f.), 25, Tub-fillers.	Coal	Whilst a gang of loading coolies was sitting at the junction of two galleries a mass of roof, 15' x 6' x 9", fell from a height of 23 feet. Five persons were injured, two of whom died shortly afterwards. Inspection and inquiry made.
34	16th August, 2 P.M.	Junardeo (No. 1) mine, Pench P. O., Central Provinces.	Rai Sahib H. Verma and M. Kanhaiyalal.	Chhoti Loharin, (f.), 40, Coal-carrier.	Coal	Deceased was employed in loading coal into baskets in a place where a pillar of coal was being extracted. A piece of coal, 3' x 2' x 4", fell between the props from a height of 6½ feet. She was struck on the back and sustained injuries which caused death a fortnight later. Inspection and inquiry made.
35	26th August, 6 P.M.	Bamanband mine, Chora P. O., Bengal.	Ghose and Adhikary	Pran Krishna Bauri, (m.), 32, Coal-cutter.	Coal	Deceased entered a fenced-off underground gallery, and whilst cutting coal at the side of a pillar, a piece of stone, 5'-6" x 1'-3" x 1', fell on him from a height of 7 feet, inflicting injuries from which he died shortly afterwards. Inspection and inquiry made.
36	30th August, 4 P.M.	Jogta mine, Sijua P. O., Bihar and Orissa.	Agabeg Brothers	Dhursan Dhobin, (f.), 22, Coal-carrier.	Coal	Deceased was in the act of loading a tub in the top section of a seam when a stone band, 2½ feet thick, which formed the floor of the top section and the roof of the bottom section, collapsed over an area of about 150 square feet. Deceased fell with the stone and was killed instantly. Inspection and inquiry made.
37	12th September, 2 P.M.	Hatnol mine, Dishergharh P. O., Bengal.	K. D. Laik and J. K. Devi	Sido Manjhi, (m.), 40, Coal-cutter.	Coal	Deceased went through a fence to cut floor coal. While cutting the coal he was injured by the fall of a mass of roof stone, 4' x 1'-9" x 4" thick, which fell from a height of 9 feet. He died three hours later. Inspection and inquiry made.
38	14th September, 10-30 A.M.	East Nandi mine, Toposi P. O., Bengal.	H. F. Pilcher	Pitamber Gope, (m.), 40, Rajaram Koar, (m.), 50, Sunder Chahl, (m.), 23, Coal-cutters.	Coal	The three deceased went through a fence into a goafed area in order to load some fallen roof coal. Whilst doing so a large slab of roof stone, 1 foot thick, fell on them from a height of 10 feet, killing one of them instantly. The two others sustained injuries which terminated fatally. Inspection and inquiry made.
39	20th September, 5-30 P.M.	Nandi mine, Nandi P. O., Bengal.	Adjai Coal Co., Ltd.	Kaloo Chamar, (m.), 56, Overman. Mohan Chamar, (m.), 40, Coal-cutter.	Coal	The two deceased passed through a fence and entered a goafed area from which the props had just been withdrawn. The roof fell killing them instantly. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<i>(a) Falls of roof—(57 deaths)—concl'd.</i>						
40	21st September, 4-30 P.M.	Lamchanchi mine, Kodarma P. O., Bihar and Orissa.	Chota Nagpur Mica Syndicate Ld.	Bishni Chamain, (f.), 21, Labourer.	Mica	Deceased was killed by a fall of roof in the end of an underground level. Inspection and inquiry made.
41	7th October, 5 P.M.	Borjan mine, Kongon P. O., Assam.	Nazira Coal Co., Ld.	Samir, (m.), 32, Coal-cutter.	Coal	Deceased whilst robbing coal from a pillar was killed by a fall of coal.
42	7th October, 10 A.M.	North Lohaputti mine, Mohuda P. O., Bihar and Orissa.	East Jamuni Coal Co.	Bishtu, (m.), 35, Coal-cutter.	Coal	Deceased had left his working place and commenced cutting coal from the side of a pillar when a portion of the roof, weighing about 2 tons, fell on him, killing him almost instantly. Inspection and inquiry made.
43	7th October, 6 P.M.	Bamangarah mine, Nawagarh P. O., Bihar and Orissa.	Seth Mohamedali Mamooji	Later Sing., (m.), 26, Timberman.	Coal	Deceased was preparing to retimber a part of the roof of a gallery which was unsafe. He neglected to support the roof temporarily before removing the old timbers with the result that a mass of coal and stone, weighing about 2 tons, fell on him killing him almost instantly. Inspection and inquiry made.
44	12th October, 10 A.M.	Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Bultoo, (m.), 34, Coal-cutter.	Coal	Whilst deceased was working in a gallery, roofstone, 8" thick, fell over an area of about 160 square feet. He was killed almost instantly. Inspection and inquiry made.
45	17th October, 9 A.M.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Manbahadur Lama, (m.), 30, Labourer.	Coal	Deceased was killed by a fall of roof coal in an "opening" or chamber.
46	25th October, 4 P.M.	Hermyingyi mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ld.	Gee Two, (m.), 35, Miner.	Tin and Wolfram ores	Deceased was engaged in cleaning out an old adit when he was killed by a mass of schist, weighing several tons, falling upon him. His body was recovered next day. Inspection and inquiry made.
47	30th October, 10-30 P.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Churamoni Kamar, (m.), 34, Labourer.	Coal	Whilst deceased was getting down loose coal after blasting in an "opening" or chamber, some of the coal fell upon him, causing fatal injuries.

48	5th November, 4-30 A.M.	Benabir mine, Jbaria P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Fulmati Belasparin, (f.), 22, Coal-carrier.	Coal	Deceased and five others were working in a gallery when a mass of coal, weighing approximately 1 ton, fell from a height of about 20 feet. Deceased was so severely injured that she died almost immediately. Another person was slightly injured. Inspection and inquiry made.
49	8th November, 2 P.M.	Foley mine, (Lease No. 59), Sharigh P. O., Baluchistan.	Baluchistan Coal Co., Ld.	Mirgul Mahomed, (m.), 25.	Coal	Deceased was killed by a fall of roof in an underground working.
50	19th November, 7-30 A.M.	Jamai-Datla mine, Parasia P. O., Central Provinces.	Rai Sahib Mathura Prosad Motilal & Co.	Nand Ram, (m.), 30, Coal-cutter.	Coal	Deceased was sitting down when a piece of stone, 4' x 2'-6" x 0", fell from a concealed "slip" at a height of 3 feet. His head was wedged against the ground, and before he could be rescued he died from suffocation. Inspection and inquiry made.
51	23rd November, 6-30 A.M.	Byauk Chaung mine, Tavoy P. O., Burma.	Burma Finance & Mining Co., Ld.	Leo Yut, (m.), 35, Miner.	Tin and Wol- fram ores.	Deceased was engaged in driving a new adit level close to an old one when a quantity of loose rock fell upon him from the old adit level. He sustained injuries from which he died.
52	24th November, 6 P.M.	Gandhala mine, Dandot P. O., Punjab.	Pandit Gian Chand	Sher, (m.), 40, Carpenter.	Coal	Whilst deceased was setting timber on an underground road a fall of roof coal took place. He sustained injuries which proved fatal.
53	28th November, 1 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways & Trading Co., Ld.	Ramnath (Marar), (m.), 34, Labourer.	Coal	Whilst deceased was testing the side in an "opening" or chamber preparatory to drilling a shot hole a mass of stone fell. Both ankles were fractured necessitating amputation. He died five days later.
54	7th December, 1 A.M.	Tirap mine, Margherita P. O., Assam.	Assam Railways & Trading Co., Ld.	Sukhon Mala, (m.), 32, Labourer.	Coal	Whilst working in an opening the deceased and another person were injured by a mass of roof stone which fell from a height of 21 feet. The deceased died from his injuries ten days later. Inspection and inquiry made.
55	13th December, 1 A.M.	Jainty Central mine, Karmatar P. O., Bihar and Orissa.	Jainty Central Colliery, Ld.	Mohi Mia, (m.), 26, Coal-cutter.	Coal	Whilst deceased was robbing coal from a pillar he was killed by a mass of stone, 8' x 6' x 6", which fell from a height of 8 feet. Inspection and inquiry made.
56	27th December, 9 A.M.	Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Budhan Mistry, (m.), 36, Carpenter.	Coal	Deceased was struck by a mass of stone, 23' x 7' x 18", which fell from the roof—a height of 5'-3". He was killed instantly. Inspection and inquiry made.
(b) Falls of side—(65 deaths).						
57	8th January, 4-30 A.M.	Sanctoria mine, Dishergarh P. O., Bengal.	Bengal Coal Co., Ld.	Sankroo Roy, (m.), 38, Coal-cutter.	Coal	Deceased, in the absence of the sirdar, went to rob coal from a pillar 700 feet distant from his working place. A mass of coal, weighing about 30 cwt. fell on him from the side of the pillar and killed him instantly. Inspection and inquiry made.

**APPENDIX II—contd.**

**Fatal Accidents, 1922—contd.**

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<i>(b) Falls of side—(65 deaths)—contd.</i>						
58	11th January, 7-30 A.M.	Chatabar mine, Mugma P. O., Bihar and Orissa.	Chatabar Colliery, Ld.	Lacha Dosad, (m.), 40, Labourer.	Coal	A gang of six coolies removed a fence, and was cutting earth near the edge of a quarry. Deceased was carrying debris into the quarry, when a portion of the side, 9' x 2' x 4', collapsed, and he fell backwards into the quarry—a distance of 9 feet. He sustained injuries to which he succumbed half-an-hour later. Inspection and inquiry made.
59	13th January, 12 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Burma Finance & Mining Co., Ld.	Lum Yoke, (m.), 32, Tributor.	Tin and Wolfram ores	Whilst deceased was engaged in barring down rock at the entrance to a newly commenced adit—some rock fell from the side and struck him on the leg, fracturing it. He was taken to hospital, but succumbed to exhaustion on the following day.
60	28th January, 10 A.M.	Godhur mine, Kusunda P. O., Bihar and Orissa.	S. B. Raha & Son	Kochia Ruhidas, (m.), 35, Coal-cutter.	Coal	Whilst deceased was robbing coal in a fenced-off gallery he was killed by a block of coal which fell from a height of 10 feet. Inspection and inquiry made.
61	6th February, 2-45 A.M.	Kinuri mine, Nirshachati P. O., Bihar and Orissa.	Kinuri Coal Co., Ld.	Prayag Bauri, (m.), 35, Fitter.	Coal	Deceased and another fitter had been repairing a pump which was slung on a platform near the bottom of a shaft 237 feet in depth. They were standing in the sinking bucket by the pump platform, when a piece of stone, weighing 78 lb., fell from the side of the shaft and struck deceased upon the head, killing him instantly. Inspection and inquiry made.
62	7th February, 4-30 P.M.	Sq. No. 18-h mine, Kodarma P. O., Bihar and Orissa.	Satya Kinkar Sahana and others.	Latoo Gope, (m.), 25, Miner.	Mica	Deceased was working in a prospecting pit, 5 feet in diameter and 11 feet deep, when some 7 cwt. of earth and stones fell from a "slip" in the side of the shaft. He received injuries from which he died three hours later. Inspection and inquiry made.
63	8th February, 4 A.M.	North Singaran mine, Toposi P. O., Bengal.	S. C. Chowdhury	Sihon Manjhi, (m.), 36, Coal-cutter.	Coal	Deceased left his working place and entered a disused gallery, which was fenced-off. A mass of coal fell from the side of a pillar, at a height of 13 feet. A portion of the coal, weighing about 3 cwt., struck deceased, killing him instantly. Inspection and inquiry made.

64	10th February, 6-15 P.M.	Bankola mine, Ukhra P. O., Bengal.	Burrakur Coal Co., Ltd.	Mooso Manjhi, (m.), 40. <i>Coal-cutter.</i>	Coal	Whilst deceased and another miner were cutting coal from the side of an underground gallery, they loosened a mass of coal, weighing about 5 tons. One piece, 4' 6" x 3' x 3', fell over on to deceased, who was sitting down beneath it, killing him instantly. The other miner was seriously injured. Inspection and inquiry made.
65	16th February, 6-45 P.M.	Viceroy mine, Nandi P. O., Bengal.	Minto Coal Co., Ltd.	Kisson Chamar, (m.), 45. <i>Coal-cutter.</i>	Coal	Deceased was cutting coal from the side of a pillar in course of extraction when a mass of coal, weighing about 1 ton, fell from the side of the pillar at a height of 10 feet on to deceased, causing injuries from which he died next day. Inspection and inquiry made.
66	23rd February, 1-30 P.M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhoom Coal Co., Ltd.	Barka Manjhi, (m.), 35, <i>Coal-cutter.</i>	Coal	Deceased left his working place against orders, and started to cut the side of a pillar in an underground gallery. A mass of coal, weighing about 1½ tons, fell from the side of the pillar at a height of 9 feet and struck deceased, killing him instantly. Inspection and inquiry made.
67	4th March, 4-30 A.M.	Parbelia mine, Dishergarh P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Behari Meah, (m.), 35, <i>Stone-cutter.</i>	Coal	Deceased with three other stone-cutters was working on a stago suspended at a point 40 feet from the bottom of a shaft 1,489 feet in depth. A piece of stone fell from the side of the shaft above them and struck the protective steel helmet which deceased was wearing. He sustained a fracture of the skull and died several hours later. Inspection and inquiry made.
68	10th March, 11 P.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways & Trading Co., Ltd.	Purnananda Thapa, (m.), 30, <i>Coal-carrier.</i>	Coal	Deceased and another man were filling coal in an "opening" or chamber when a mass of side coal, weighing about 4 tons, fell upon them. Deceased was killed instantly, and the other man sustained serious injuries. Inspection and inquiry made.
69	22nd March, 9 A.M.	Northern mine, Nawagarh P. O., Bihar and Orissa.	Northern Coal Co., Ltd.	Manbodh Bilaspuria, (m.), 25, <i>Coal-cutter.</i>	Coal	Deceased went within a fenced area to rob coal from a partly crushed pillar. A mass of coal, 7' x 7' x 3', and weighing about 5 tons, fell on him. He received injuries from which he died almost immediately. Inspection and inquiry made.
70	23rd March, 6-30 P.M.	Busserya mine, Kusunda P. O., Bihar and Orissa.	Busserya Coal Co., Ltd.	Banshiram Gowala, (m.), 25, <i>Coal-cutter.</i>	Coal	Deceased left his working place in a quarry and commenced to rob coal from a portion of the quarry which had been fenced-off on account of overhanging and dangerous side. A mass of coal and stone, weighing about 10 cwt., fell upon him from the side at a height of 4 feet. He sustained injuries to which he succumbed about an hour later. Inspection and inquiry made.
71	30th March, 5-45 P.M.	South Lohaputty mine, Mohuda P. O., Bihar and Orissa.	South Lohaputty Coal Co.	Motua Manjhi, (m.), 21, <i>Coal-cutter.</i>	Coal	Deceased was said to have been robbing coal in a quarry, when a mass of coal and overburden, 30' x 14' x 4', and weighing about 77 tons, fell from the side, and partially buried him. He received injuries, which caused death almost immediately. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<b>(b) Falls of side—(65 deaths)—contd.</b>						
72	31st March, 5-30 P.M.	Jealgora (North) mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Munda Chamar, (m.), 28, Coal-cutter.	Coal	Deceased was taking down side coal when a portion of the side of the pillar, weighing about 15 tons, fell and, striking deceased, killed him instantly. Inspection and inquiry made.
73	1st April, 2 P.M.	Sohagpur Dhana & Kotmi mine, Shahpur P. O., Central Provinces.	Shaikh Shahabuddin & Sons	Tulsi Kotwor, (m.), 25, Labourer.	Coal	Deceased was killed by a fall of side in an abandoned surface working. Two other persons were injured. Inspection and inquiry made.
74	22nd April, 12 A.M.	Muraidih mine, Katrasgarh P. O., Bihar and Orissa.	Bholaram Agarwalla	Chotta Mahato, (m.), 32, Coal-cutter.	Coal	Deceased was engaged in removing overburden from the side of a quarry when a mass of earth, 7' x 5' 6" x 18", fell and buried him. He received injuries from which he died two hours later. Inspection and inquiry made.
75	28th April, 5-30 A.M.	Gopalichuk Head mine, Jharia P. O., Bihar and Orissa.	Gopalichuck Coal Co., Ltd.	Bhadoo Gope, (m.), 35, Coal-cutter.	Coal	Deceased while undercutting coal on the side of a quarry was struck by a fall of coal and stone weighing about 15 cwt. He was severely injured and died soon after. Inspection and inquiry made.
76	28th April, 2 P.M.	Asakuti mine, Katrasgarh P. O., Bihar and Orissa.	Royal Coal Co., Ltd.	Jamru Manjhi, (m.), 35, Coal-cutter.	Coal	Deceased left his working place and began to rob coal from the corner of a pillar. A mass of side coal, weighing about 2 tons broke away from a "slip," and fell on him killing him instantly. Inspection and inquiry made.
77	28th April, 12-30 P.M.	Pretoria mine, Charanpur P. O., Bengal.	Seebpore Coal Co., Ltd.	Kala Manjhi, (m.), 25, Coal-cutter.	Coal	Deceased went through a fence and commenced robbing coal from the corner of a pillar. A mass of coal, weighing about 15 cwt., broke away from the side of the pillar and fell on him, killing him instantly. Inspection and inquiry made.
78	1st May, 7 P.M.	Sonachora mine, Raniganj P. O., Bengal.	Mangalpur Colliery Co.	Masath Ram (Chana), (m.), 22, Labourer.	Coal	Deceased, against orders, went to remove overburden in a quarry. A mass of earth, 8' x 10' x 2', broke away from the side and fell upon him, partially burying him. He sustained a fracture of the spine and died two days later. Inspection and inquiry made.



70	8th May, 12-30 P.M.	Rauta mine, Ramgarh P. O., Bihar and Orissa.	Surat Kumar Gupta	Bhugla Kurmi, (m.), 40, Labourer.	Coal	Deceased was killed by a fall of side coal in a quarry.
80	22nd May, 12 A.M.	Mudidih mine, Sijua P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	Mirja Chamar, (m.), 38, Coal-cutter.	Coal	Whilst deceased was employed dressing the sides of an underground gallery a mass of coal, 24' x 15' x 2' thick, fell on him. He received injuries from which he died two hours later. Inspection and inquiry made.
81	23rd May, 5 A.M.	Kurbaree mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Lakhia Dusadin, (f.), 45, Coal-carrier.	Coal	Owing to heavy roof pressure a piece of coal burst from the side of a pillar and struck the deceased on the leg. She sustained a compound fracture and died a few days later. Inspection and inquiry made.
82	27th May, 2-30 P.M.	Chanck mine, Barakar P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Dhokal Roy, (m.), 47, Coal-cutter.	Coal	Deceased, whilst at work in a quarry, was killed by a fall of some 3 or 4 tons of overburden from a height of 9 feet. Inspection and inquiry made.
83	13th June, 10-45 A.M.	Kodaigaon mine, Khapa P. O., Central Provinces.	Indian Manganese Co., Ltd.	Ganpatiappa, (m.), 14, Wagon-trimmer.	Manganese ore	Deceased was killed by a fall of side in a quarry.
84	10th June, 3 P.M.	Sripore mine, Kalipahari P. O., Bengal.	Lodna Colliery Co., (1920) Ltd.	Khalapa Madraasi, (m.), 37, Coal-cutting Machine- man.	Coal	Whilst deceased was levering loose coal from the side of a pillar the coal came away suddenly. He tried to jump clear but slipped and was struck by a portion of the falling coal. He was killed instantly. Inspection and inquiry made.
85	23rd June, 11-30 P.M.	Sijua mine, Sijua P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Hupni Majhian, (f.), 13, Coal-carrier.	Coal	Deceased was struck on the head by a piece of coal, weighing about 30 lb., which fell from a height of about 20 feet. She sustained a compound fracture of the skull and succumbed shortly afterwards. Inspection and inquiry made.
86	27th June, 10 A.M.	Jotejanaki (Koradanga) mine, Toposi P. O., Bengal.	P. K. Chatterjee & Bros.	Luchiram Manjhi, (m.), 25, Coal-cutter. ]	Coal	Deceased was working on a bench of floor coal 8 feet high. A piece of coal, 3' x 2' x 2', which he had undercut, fell. He was knocked down and killed instantly. Two other persons received slight injuries. Inspection and inquiry made.
87	27th June, 3 P.M.	MacLellan mine, Manoharpore P. O., Bihar and Orissa.	Bengal Iron Co., Ltd.	Arjoon Gowala, (m.), 40, ]  Maroo Kola, (m.), 34,  Gobarahan Gore, (m.), 25, Miners.	Iron ore	The three deceased and three others took refuge from a heavy fall of rain under the vertical side of a quarry. A mass of material, weighing about 5 tons and consisting of earth and detached pieces of iron ore, fell suddenly upon them from a height of about 12 feet. Two were killed instantly, another died two days later, a fourth sustained serious injuries and the other two were injured slightly. Inspection and inquiry made.
88	2nd July, 10 A.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., (1920) Ltd.	Jinot Chamar, (m.), 45, Coal-cutter.	Coal	Deceased, while at work in a quarry, was loading coal into a basket when a piece of coal, 6' x 3' x 2', fell from a height of 8 feet. He received injuries from which he died shortly afterwards. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<i>(b) Falls of side—(65 deaths)—contd.</i>						
89	17th July, 1 P.M.	Kanakok Aing mine, Palaw P. O., Burma.	Yew Shwe Ni	Mg Tun Thin, (m.), 20, Labourer.	Tin ore	Deceased, with five other coolies, was cutting a ditch near the side of an opencast working, when a mass of side, weighing about 2 tons, fell upon him from a height of 12 feet. He was killed instantly. Inspection and inquiry made.
90	31st July Not known.	Kyine Kyon Kai Daw mine, Karathuri P. O., Burma.	Kyine Kyon	Tan Bai, (m.), 30, Labourer.	Tin ore	Deceased was killed by a fall of side in an open excavation.
91	25th July, 2 P.M.	Nandi mine, Charanpur P. O., Bengal.	Adjai Coal Co., Ltd.	Thatoo Manjhi, (m.), 28, Coal-cutter.	Coal	Whilst a shothole was being bored in some overhanging coal in an underground gallery 12 feet high, the overhanging coal fell without warning. Deceased who was sitting near by was struck by a piece of falling coal and killed instantly. Another miner received slight injuries. Inspection and inquiry made.
92	5th August, 4 A.M.	Central Kurkend mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ltd.	Barku Singh, (m.), 22, Coal-cutter.	Coal	Deceased was robbing coal in a haulage siding when a piece of coal, 9' x 3' x 2', fell from the side. He received injuries from which he died twelve hours later. Inspection and inquiry made.
93	11th August, 3 P.M.	Bhowra mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Latha Bauri, (m.), 22, Coal-cutter.	Coal	Deceased was surreptitiously robbing the side of a pillar when a piece of coal, weighing nearly 10 cwt., fell and crushed his right foot so severely that amputation was necessary. Septic poisoning supervened and he died seven days after the accident. Inspection and inquiry made.
94	15th August, 1-30 P.M.	Bhutgoria mine, Jamadoba P. O., Bihar and Orissa.	Aldih Coal Co., Ltd.	Doman Mahato, (m.), 32, Labourer.	Coal	Deceased was clearing a gallery which had been filled with stone when a large block of side coal, weighing about 2 tons, fell on him, killing him instantly. Inspection and inquiry made.
95	4th September, 4 P.M.	Manaigaon mine, Tharsa P. O., B. N. Rly., Central Provinces.	Central India Mining Co., Ltd.	Ganiram Lodhi (m.), 45, Miner. Wadia Gond, (m.), 35, Not employed.	Manganese ore	During heavy rain the deceased and three other persons took shelter in a tramway cutting. A mass of mica schist, weighing about 2½ tons, fell from the side. The deceased were buried. One of them was killed instantly. The other was living when extricated, but was injured so severely that he died shortly after. Inspection and inquiry made.

96	15th September, 5-30 P.M.	Dishergarh West mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Feely Baurin, (f.), 25, Coal-carrier.	Coal	Deceased was employed in carrying fallen coal along a level. A mass of coal, weighing about 10 cwt., broke away from the side of a pillar and fell upon her. She was killed instantly. Inspection and inquiry made.
97	16th September, 3 P.M.	Dhola No. 2 mine, Kodarma P. O., Bihar and Orissa.	Ansinha & Co.	Panchoo Turi, (m.), 23, Labourer.	Mica	Deceased was killed by a fall of side in a prospecting pit.
93	23rd September, 11 A.M.	Sikdardih mine, Giridih P. O., Bihar and Orissa.	Bayra Coal Association	Lidihri Majhian, (f.), 12, Coal-carrier.	Coal	Whilst a coal-cutter was dressing coal from a pillar in a seam 9 feet thick, a mass of coal, weighing about 30 cwt., fell without warning from a "slip" at a height of 7 feet. Deceased who was sitting down near by was struck by the falling coal and sustained serious injuries to which she succumbed six hours later. The coal-cutter was seriously injured. Inspection and inquiry made.
99	25th September, 3 P.M.	Bokaro Jharis mine, Nawagarh P. O., Bihar and Orissa.	Agarwalla Brothers	Rani Mejhian, (f.), 14, Coal-carrier.	Coal	The deceased was loading coal on an underground tramline when some 5 cwt. of coal fell on her from the side, causing fatal injuries. Inspection and inquiry made.
100	4th October, 1-45 P.M.	Huntodih mine, Mohuda P. O., Bihar and Orissa.	Huntodih Coal Co., Ld.	Bhola Rai (m.), 30, Coal-cutter.	Coal	Deceased was cutting coal from the corner of a pillar when a block of coal, weighing about one ton, fell unexpectedly and broke his leg. He received prompt medical attention but died eight days later from heart-failure. Inspection and inquiry made.
101	5th October, 12 A.M.	Joyrampur mine, Jharis P. O., Bihar and Orissa.	B. R. & Co.	Budhai Gudaria, (m.), 35, Coal-cutter.	Coal	Deceased was in an underground gallery, on a ladder, getting down side coal. About 1 ton of coal came away bringing the ladder and deceased to the ground and killing him instantly. Inspection and inquiry made.
102	6th October, 1 A.M.	Bhowra mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Lahu Kahar, (m.), Unknown, Coal-cutter.	Coal	Deceased left his working place and commenced to rob the side of a pillar. A block of coal, weighing about 1 ton, fell on him causing fatal injuries. Inspection and inquiry made.
103	9th October, 9-30 A.M.	Kalabagh mine, Kalabagh P. O., Punjab.	Government of India	Mir Alam, (m.), 48, Miner.	Salt	Deceased was buried by a mass of loose earth, weighing about 5 tons, which fell from the side of a quarry. He was killed instantly. Inspection and inquiry made.
104	18th October, 6-30 A.M.	Viceroy mine, Nandi P. O., Bengal.	Minto Coal Co., Ld.	Mangal Manjhi, (m.), 45, Coal-cutter.	Coal	The workmen had been withdrawn from a working place owing to a roof "weight." Deceased returned to the place, and was killed by a mass of coal which fell from the side. Inspection and inquiry made.
105	24th October, 4-15 P.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Kaila Mara, (m.), 30, Bhukhi Aran, (f.), 40, Mangie Aran, (f.), 9, Labourers.	Coal	The three deceased were working in an incline cutting when the side of the cutting to the extent of about 30 tons of stone and earth collapsed and buried them so completely that they died from suffocation before they could be extricated. Two other persons who were in the cutting at the time, narrowly escaped with their lives. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—concl'd.</b>						
<b>(b) Falls of side—(65 deaths)—concl'd.</b>						
106	27th October, 3 P.M.	Bowla mine, Chora P. O., Bengal.	Bowla Coal Co.	Kristo Bauri, (m.), 40, Coal-cutter.	Coal	Whilst deceased was cutting coal in a gallery he was injured by a piece of falling coal. He died from the effects of blood poisoning six days later. Inspection and inquiry made.
107	27th October, 3-15 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., (1920) Ld.	Sashi Baurin, (f.), 35, Coal-carrier.	Coal	Deceased was loading coal in a gallery when a portion of the roof and side, weighing about 5 tons, fell from a height of from 10 to 20 feet. Deceased sustained severe injuries to the leg and to the head and died a few hours afterwards. Inspection and inquiry made.
108	29th October, Unknown.	Mwe Hauk Chaung mine, Palaw Township P. O., Burma.	Yew Shwe Ni	Chine Wan, (m.), 30, Miner.	Tin ore	Whilst deceased was prospecting for tin on a hillside a boulder, weighing about 2 tons, slid down and fell upon him. He sustained serious injuries. He was rescued about a day later, but died a few hours afterwards. Inspection and inquiry made.
109	8th December, 3 A.M.	Dishergarh East mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Tipee Mejhian, (f.), 24, Coal-carrier.	Coal	Whilst deceased was loading a basket of coal she was killed by a mass of coal, 3'×2'-6"×2'-6", which fell from a height of 15 feet. Inspection and inquiry made.
110	9th December, 11 P. M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., (1920) Ld.)	Durga Passi, (m.), 52, Munshi.	Coal	Deceased was sitting at the corner of a pillar into which, on the opposite side, a shot was fired, when a piece of coal, weighing about 1 cwt., was released by the shock of the shot, and, falling from a height of about 20 feet, struck him on the head and killed him almost instantly. Inspection and inquiry made.
111	13th December, 8 A.M.	Bhuggutdih mine, Jharia P. O., Bihar and Orissa.	Bengal Nagpur Coal Co., Ld.	Darsan Chamar, (m.), 45, Coal-cutter.	Coal	Deceased had entered a fenced-off gallery and had commenced to rob coal from the corner of a pillar, when a block of coal, weighing about 3 tons, fell on him and killed him instantly. Inspection and inquiry made.
112	13th December, 10 A.M.	Bagdigi mine, Jharia P. O., Bihar and Orissa.	Villiers, Ld.	Suki Ram Chamar, (m.), 30, Pudu Kurmi, (m.), 32, Mohan Teli, (m.), 20, Coal-cutters.	Coal	The three deceased were engaged in testing and preparing to blast down the top coal of a pillar, 24 feet high, when a large block of coal, weighing about 5 tons, fell and killed them instantly. Inspection and inquiry made.

113	20th December, 10-15 A.M.	Khas Joyrampur mine, Jharia P. O., Bihar and Orissa.	Khengarji Trikoo & Co.	Tej Ram, (m.), 25, Coal-cutter.	Coal	Deceased had passed through a fence and commenced to rob coal from the side of a pillar, when a large block, weighing approximately 5 tons, fell on him, killing him instantly. Inspection and inquiry made.
114	23rd December, 12 P.M.	Bararoo mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Hiroindi, (f.), 35, Coal-carrier.	Coal	Deceased and three other workmen broke down a fence and lay down to sleep at the corner of a pillar. A mass of coal, weighing approximately 1 ton, fell on them from a height of about 15 feet, killing deceased and injuring the other three. Inspection and inquiry made.
<b>IN SHAFTS—(35 deaths).</b>						
<b>In shafts—Overwinding—(9 deaths).</b>						
115	29th April, 9-15 A.M.	Sodepur mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ltd.	(1) Jugal Manjhi, (m.), 50, Coal-cutter ; (2) Rajoni Kora, (f.), 14, Coal-carrier ; (3) Ramani Bauri, (m.), 30, (4) Nayan Manjhi, (m.), 35, (5) Dinoo Karra, (m.), 55, Coal-cutters ; (6) Nuni Karra, (f.), 15, (7) Pusi Karra, (f.), 40, Coal-carriers ; (8) Suku Karra, (m.), 14, Coal-cutter.	Coal	Sixteen persons were being lowered in a cage down a shaft 887 feet in depth. The enginemen lost control of the engine and the cage dashed on to the landing platform with great force. All the persons in the cage sustained serious injuries and eight of them died subsequently. Inspection and inquiry made.
116	24th August, 3-30 A.M.	Hariladih mine, Jamadoba P. O., Bihar and Orissa.	Equitable Coal Co., Ltd.	Mahomed Khalil, (m.), 30, Pumpman.	Coal	While deceased was descending a shaft the winding engineman lost control of the engine. The descending cage struck the landing platform with such impact that deceased sustained injuries from which he died next day. Inspection and inquiry made.
<b>In shafts—Ropes and chains breaking—(5 deaths.)</b>						
117	3rd February, 8-30 A.M.	Malkera mine, Katragsarh P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Atma Singh, (m.), 35, Raghunath Gosain, (m.), 33, Balai Kumar, (m.), 27, Labourers.	Coal	A steel wire guide rope was being installed in a shaft 364 feet deep. The upper end was secured to the winding rope at the pit top by three temporary clamps. The lower end had been clamped permanently at the pit bottom. The guide rope was being tightened by the winding engine when the clamps slipped and the rope fell down the shaft, killing the deceased and injuring five others who were in the shaft bottom at the time. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>IN SHAFTS—contd.</b>						
<b>In shafts—Ropes and chains breaking—(5 deaths)—contd.</b>						
118	7th May, 3-30 A.M.	Jibutil mine, Morrison P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Obanna, (m.), 23, Labourer.	Gold	Deceased was standing at the bottom of a winze, 40 feet deep, when the windlass rope, $\frac{1}{2}$ " diameter, broke during winding, and the bucket, weighing about 2 cwt., fell from the top of the winze on to deceased. He was killed on the spot. Inspection and inquiry made.
119	4th November, 7 A.M.	Ghusick mine, Kalipahari P.O., Bengal.	Ghusick & Muslia Collieries, Ld.	Sriram Mistry, (m.), 38, Fitter.	Coal	Whilst deceased was standing on the top of the cage at the bottom of a shaft, 450 feet deep, a guide rope broke. He was struck and fatally injured by the falling rope. Inspection and inquiry made.
<b>In shafts—Whilst ascending or descending by machinery— (4 deaths).</b>						
120	10th March, 6-30 P.M.	Gopalichuck West mine, Kusunda P. O., Bihar and Orissa.	Gopalichuck Coal Co., Ld.	Sarban Mudi, (m.), 25, Sinker.	Coal	A sinking bucket while being raised in a shaft was caught under the flange of a pipe in the pump delivery column, at a point about 300 feet from the bottom of the shaft. The stoppage caused one of the suspension hooks to be pulled straight, releasing the chain and allowing the bucket to tilt. Deceased was thrown out, fell to the bottom of the shaft and was killed. Inspection and inquiry made.
121	20th September, 7 A.M.	Bansdeopur mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ld.	Shew Kumar Pandey, (m.), 19, Banksman.	Coal	Deceased boarded the cage in order to descend a shaft. He shouted to the engineman to lower and the latter did so. When the cage had descended a short distance, deceased stepped off and his leg was caught between the cage and the pit bank. His injuries were so severe that he died three days later. Inspection and inquiry made.
122	1st November, 3-30 P.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ld.	Low U, (m.), 20, Mucker.	Silver-lead-zinc	Deceased was being raised from a winze in a bucket. The bucket bumped against the timbering and this caused him to fall to the bottom of the winze. His injuries were fatal.

123	20th December, 3 A.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ltd.	Chandra Singh, (m.), 30, <i>Miner.</i>	Silver-lead-zinc	An injured man was being taken out of the mine. Deceased was supporting the man in the cage, and appears to have fainted. He fell out of the cage and, falling to the bottom of the shaft, was killed instantly.
In shafts—Falling into the shaft from the surface— (4 deaths).						
124	4th April, Unknown.	North Mosila mine, Kalipahari P. O., Bengal	North Moshila Coal Co.	Jahaj Bauri, (m.), 45, <i>Pumpman.</i>	Coal	Deceased fell from the surface to the bottom of a winding shaft, 124 feet deep, and was killed instantly. Inspection and inquiry made.
125	26th June, 9 A.M.	Bhugutdih mine, Jharia P. O., Bihar and Orissa.	Bengal-Nagpur Coal Co., Ltd.	la Mahato, (m.), 45, <i>Underground trolley- man.</i>	Coal	Deceased fell down a shaft, 220 feet deep, and was killed. Inspection and inquiry made.
126	28th June, 11-30 A.M.	South-East Baraboni mine, Charanpur P. O., Bengal.	Maharaja of Cossimbazar	Lakhu Bauri, (m.), 17, <i>Banksman.</i>	Coal	Deceased, whilst opening the valve of a water bucket by means of a pole, was standing on the brickwork fencing of a shaft 350 feet deep. He overbalanced and fell to the bottom of the shaft. He was killed instantly. Inspection and inquiry made.
127	17th October, 8-15 A.M.	Chanch mine, Barakar P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Foolehand Roy, (m.), 35, <i>Sirdar.</i>	Coal	Whilst a guide rope was being placed in position in a shaft it bore against a beam placed across the top of the shaft. The beam, on which some planks rested, was displaced, and deceased, who was standing on the planks, fell down the shaft, a distance of 550 feet, and was killed instantly. Inspection and inquiry made.
In shafts—Falling from part of the way down—(6 deaths).						
128	9th February, 6 A.M.	Khost mine, Khost P. O., Baluchistan.	North-Western Railway	Mir Hussain, (m.), 30, <i>Coal-cutter.</i>	Coal	Whilst a train of trams was descending an inclined shaft deceased attempted to get into the tubs. He slipped and fell down the shaft, sustaining a spinal injury which caused death two days later. Inspection and inquiry made.
129	1st July, 7 A.M.	Teetulmari mine, Sijua P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	Charles Leslie Van Ingen, (m.), 19, <i>Mining Pupil.</i>	Coal	Deceased in stepping on to the cage at a mid-landing slipped and fell between the cage and the shaft side to the shaft bottom, a distance of about 80 feet. He was so severely injured that he died almost immediately. Inspection and inquiry made.
130	5th September, 10-30 A.M.	Loi-an-Central mine, Kalaw P. O., Southern Shan States, Burma.	Coalfields of Burma, Ltd.	Law Woo, (m.), 27, <i>Coal-cutter.</i>	Coal	Whilst at work on a temporary staging in a shaft deceased fell to the bottom of the shaft, 45 feet below, and was killed.
131	9th October, 3 A.M.	Kargali mine, Bokaro P. O., <i>via</i> Mohuda, Bihar and Orissa.	Great Indian Peninsula Rail- way Co.	Mongra, (m.), 20, <i>Banksman.</i>	Coal	As the bucket was being raised from the staging at an inset in a sinking shaft the deceased fell from it into the sump and was drowned. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>IN SHAFTS—concl'd.</b>						
<b>In shafts—Falling from part of the way down—(6 deaths)—cont'd.</b>						
132	30th November, 6 A.M.]	Aldih mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ltd.	Rahon Gope, (m.), 40, Sinkers.	Coal	Deceased while ascending a sinking shaft, 950 feet deep, either fell or jumped out of the bucket and was killed instantly. Inspection and inquiry made.
133	30th December, 2-30 P.M.	Sijua mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Bulan Singh, (m.), 38, Tindal.	Coal	Deceased attempted to descend a shaft 235 feet deep by sliding down one of the guide ropes to release the cage which had jammed about midway in the shaft. He was unable to control his descent and falling violently on the cage and thence to the shaft bottom, was killed. Inspection and inquiry made.
<b>In shafts—Things falling from the surface—(1 death).</b>						
134	21st January, 2 P.M.	Jharia Khas (Angarpatra) mine, Katrasgarh P. O., Bihar and Orissa.	Trigonait Bros.	Mattu Gope, (m.), 38, Stone-cutter.	Coal	Whilst deceased was at work sinking a well a piece of timber, 3" diameter × 5' long, which formed part of the landing platform fell from the surface, a distance of 32 feet. He received injuries from which he died next day. Inspection and inquiry made.
<b>In shafts—Things falling from part of the way down—(2 deaths).</b>						
135	30th March, 6 P.M.	Khas Jharia mine, Jharia P. O., Bihar and Orissa.	Seth Khora Ramji	Nomi Gowala, (m.), 30, Onsetter.	Coal	Deceased was the onsetter at the bottom of a shaft, 306 feet deep. Whilst a loaded tram was being raised in the cage a piece of coal, weighing about 4 lb. fell from the tram and struck him on the head. He sustained a fracture of the base of the skull, and died three days later. Inspection and inquiry made.
136	17th April, 4-30 P.M.	Sijua mine, Sijua P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Gurda Gope, (m.), 22, Stone-cutter.	Coal	Deceased was in the act of stepping out of a sinking bucket at the bottom of a shaft when a piece of stone fell and struck him on the head, killing him instantly. Inspection and inquiry made.



In shafts—Miscellaneous—(4 deaths).

137	5th January, 4-30 A.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Churaman Gope, (m.), 40, Trolleyman.	Coal	Deceased, instead of using the pass-by, attempted to cross the bottom of a shaft. He was crushed under the descending cage, and sustained fatal injuries. Inspection and inquiry made.
138	6th April, 7 A.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Komla Dhobi, (m.), 22, Hookman.	Coal	Deceased, while the cages were in motion, attempted to fill a vessel with water from the shaft sump. The descending cage struck him and crushed his head so severely that he was killed almost instantly. Inspection and inquiry made.
139	19th October, 12-15 P.M.	Suratand mine, Jharia P. O., Bihar and Orissa.	Suratand Coal Co., Ltd.	Imaman, (m.), 35, Fitter.	Coal	Deceased who was standing on the platform of a shaft pump, 180 feet from the top of the shaft and 2 feet above the surface of the water, fell off the platform into the water and was drowned. Inspection and inquiry made.
140	14th November, 5-30 A.M.	Bankola mine, Ukhra P. O., Bengal.	Burrakur Coal Co., Ltd.	Jahuri Bauri, (m.), 43, Banksman.	Coal	As a loaded cage in a winding shaft was coming up to the surface the two banksmen took hold of the loaded tub. The cage, however, did not land on the "keps", but descended about eighteen inches, causing both banksmen to slip. Their left legs were crushed between the cage and the landing platform. They were both injured and deceased died within a few minutes. Inspection and inquiry made.

BY EXPLOSIVES—(9 deaths).

141	22nd January, 2 P.M.	Kalabagh mine, Kalabagh P. O., Punjab.	Government of India	Ida, (m.), 24, Labourer.	Salt	Deceased was seriously burnt by an accidental ignition of gunpowder by a fellow-worker. He died from his injuries six days later. Inspection and inquiry made.
142	23rd March, 9-30 P.M.	Ghugus mine, Ballarpur P. O., Central Provinces.	Sir K. C. Daga & Bros. and Sir M. B. Dadabhoy	Babli Malloo, (m.), 13, Labourer.	Coal	Deceased found a detonator and, whilst he was handling it, it exploded. He sustained injuries to which he succumbed on the next day. Inspection and inquiry made.
143	13th April, 9 A.M.	Baidyanathpur mine, Pandaveswar P. O., Bengal.	Samsa Govindpur Collieries, Ltd.	Upendra Bauri, (m.), 36, Coal-cutter.	Coal	Deceased received ten pounds of gun powder to be manufactured into cartridges for use underground. Instead of making the cartridges in the room provided for the purpose he took the powder home to his village. Whilst he and two other miners were making the cartridges, a spark from a pipe or the fire ignited the gunpowder which exploded and burnt them severely. Deceased died four days later as a result of his burns. His companions recovered. Inspection and inquiry made.
144	7th July, 3-30 P.M.	South Bulliaree mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Jahari Painka, (m.), 72, Coal-cutter.	Coal	Deceased, while leaving his working place, was struck by a piece of coal from a shot fired by a fellow workman. He was killed instantly. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>BY EXPLOSIVES—(9 deaths)—contd.</b>						
145	11th August, 1 P.M.	Kargali mine, Bokaro P. O., <i>vid</i> Mohuda, Bihar and Orissa.	Great Indian Peninsula Railway Co.	Jheria, (m.), 28, <i>Quarryman.</i>	Coal	Deceased, whilst engaged in breaking up with a hammer large stones produced by blasting in a quarry, appears to have struck a dynamite cartridge. An explosion occurred, and he was injured so severely that he died five days later. Inspection and inquiry made.
146	8th September, 5-40 P.M.	Bankola mine, Ukhra P. O., Bengal.	Burrakur Coal Co., Ld.	Banshi Gope, (m.), 32, <i>Coal-cutter.</i>	Coal	Deceased took a canister containing seven cartridges of gunpowder into his dwelling and placed it beneath an open lamp hanging on the wall. He opened the canister to put in some fuse when sparks from the lamp fell on the gunpowder and ignited it. Deceased was seriously burnt and died three days later. Another man was seriously burnt. Inspection and inquiry made.
147	2nd October, 1-15 P.M.	Khewra mine, Khewra P. O., Punjab.	Government of India	Md. Bux Karim, (m.), 25, <i>Miner.</i>	Salt	Whilst deceased was drying damp fuse sticks over a lamp they became ignited. He threw them away and they fell on an open powder bag which also took fire. Deceased and two other men were burnt. He died five days later. Inspection and inquiry made.
148	14th December, 12 P.M.	Chandametta mine, Parasia P. O., Central Provinces.	Pench Valley Coal Co., Ld.	Barati Gond, (m.), 36, <i>Coal-cutter.</i>	Coal	During blasting operations in his working place, deceased went and sat opposite an old gallery which was being connected with the gallery in which shot-firing was being done. He was struck on the head by a piece of coal and sustained a fractured skull. He died six days later. Inspection and inquiry made.
149	27th December, 4-30 P.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Gobinda Chamar, (m.), 20, <i>Coal-cutter.</i>	Coal	Deceased, while ascending a shaft, allowed his lamp and gunpowder tin to fall to the bottom of the cage. The gunpowder ignited and deceased received burns from which he died. Inspection and inquiry made.

IRRUPTIONS OF WATER—(1 death).

150	2nd August, 4 P.M.	Kustore North mine, Kusunda P. O., Bihar and Orissa.	Kosoonda and Nayadce Col- lieries, Ld.	Samee Kamin, (f.), 30, Coal-carrier.	Coal	Deceased and nine other women accompanied by a Sirdar were coming out of an incline at the end of the shift when they were met by a sudden inrush of water due to the breaking of a protective bund as the result of heavy rains. Deceased was carried away by the rush of water and was either drowned or died of the injuries she received. The other persons escaped. Inspection and inquiry made.
HAULAGE—(20 deaths).						
151	20th February, 4-30 A.M.	South Govindpur mine, Katrargarh P. O., Bihar and Orissa.	South Govindpur Colliery Ld.	Tokhan Bhuia, (m.), 28, Coal-cutter.	Coal	Deceased was standing on a slightly inclined road between loaded tubs when another loaded tub ran away from inbye and collided with the tubs, crushing him so severely that he died soon afterwards. Inspection and inquiry made.
152	20th February, 12 A.M.	South Bulliarce mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Hari Lall, (m.), 25, Haulage Engineman.	Coal	Deceased was caught by the rope of an endless haulage and pulled on to the haulage pulley. He was so badly mutilated that he died almost instantly. Inspection and inquiry made.
153	22nd February, 1-30 P.M.	Chandametta mine, Penoh P. O., Central Provinces.	Penoh Valley Coal Co., Ld.	Permasher Nai, (m.), 25, Timberman.	Coal	Whilst an empty tub was being taken down an incline it ran wild and overturned on the level road at the foot of the incline. Deceased, who was passing, was struck by the tub and fatally injured. Inspection and inquiry made.
154	24th February, 10 P.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway	Sikander Sulia, (m.), 18, Signaller.	Coal	Whilst a train of four tubs was being lowered in a shaft or haulage slope inclined at 50 degrees derailment took place. Deceased, who was riding in one of the tubs, was crushed against the shaft timbering and killed. Inspection and inquiry made.
155	2nd March, 4 P.M.	Kirkend mine, Kusunda P. O., Bihar and Orissa.	Kirkend Coal Co.	Rijhu Manjhi, (m.), 32, Coal-cutter.	Coal	Whilst deceased and others were loading a train of seventeen tubs at the bottom of a dip haulage road one of the tubs became derailed causing the whole train to move downhill. Deceased, in trying to escape was caught between one of the tubs and another train of loaded tubs standing alongside. He was so severely crushed that he died almost immediately. Inspection and inquiry made.
156	7th March, 3 P.M.	Khewra mine, Khewra P. O., Punjab.	Government of India	Alam, (m.), 50, Mule-driver.	Salt	Deceased was in charge of a train of three loaded trucks. His foot slipped off the brake and was crushed between the brake band and the wheel. He died a few days later. Inspection and inquiry made.
157	29th March, 1-15 P.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ld.	Prodhan Singh, (m.), 22, Brakesman.	Silver-lead- zinc.	Whilst engaged in coupling ore cars deceased was crushed between a car and a timber support. He was killed instantly.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>HAULAGE—(20 deaths)—contd.</b>						
158	4th April, 8 A.M.	Churulia mine, Charanpur P. O., Bengal.	Churulia Coal Co., Ltd.	Dhaju Manjhi, (m.), 20, Coal-cutter.	Coal	The banksman at the entrance to a haulage incline having omitted to close the stop block and open the runaway switch, an empty tub ran away down the incline and struck deceased, who was walking down the haulage road. He sustained serious internal injuries and died five hours later. Inspection and inquiry made.
159	17th April, 5 P.M.	Bhatdee mine, Mohuda P. O., Bihar and Orissa.	Bengal Bhatdee Coal Co., Ltd.	Nakul Pudder, (m.), 25, Trolleyman.	Coal	Deceased was pulling on the front tub of a set of five in order to assist it round a curve in a haulage road when the tub left the rails and upsetting, pinned him underneath it. He received injuries from which he afterwards died. Inspection and inquiry made.
160	4th May, 8 A.M.	Rajhara mine, Rajhara P. O., Bihar and Orisa.	Bengal Coal Co., Ltd.	Ramabatar Noonis, (m.), 14, Coal-carrier.	Coal	The front tub of a train of empty tubs became detached and ran wild down a haulage incline. It left the rails and struck deceased, causing injuries which resulted fatally next morning. Inspection and inquiry made.
161	16th May, 4 P.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ltd.	Low Hlu, (m.), 22, Brakesman.	Silver-lead-zinc.	Whilst deceased was attempting to couple ore cars he was crushed between the cars and a post. He sustained fatal injuries.
162	18th May, 9 A.M.	Bokaro Jharia mine, Nawagarh P. O., Bihar and Orissa.	Agarwalla Bros.	Dalu Chamar, (m.), 45, Coal-cutter.	Coal	Whilst a train of empty tubs was being lowered down an incline the leading tub became uncoupled and ran wild. Deceased, who was sitting at the entrance to a level, was struck by the tub and died two hours later. Inspection and inquiry made.
163	3rd August, 3-45 P.M.	Khewra mine, Khewra P. O., Punjab.	Government of India	Khan, (m.), 35, Labourer.	Salt	During the re-railing of some loaded tubs, deceased slipped and was struck by the locomotive. He received injuries from which he died shortly after. Inspection and inquiry made.
164	7th August, 10 A.M.	Sutikdih mine, Patherdih P. O., Bihar and Orissa.	Sutikdih Coal Co., Ltd.	Pariag Padder, (m.), 35, Mason.	Coal	Deceased was presumed to have jumped on to a moving set of tubs which was being hauled up an incline. He struck his head against the roof timbers and received injuries from which he died a few hours later. Inspection and inquiry made.

163	10th August, 4-30 P.M.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Mahomed Makrani, (m.), 33, <i>Labourer.</i>	Coal	Deceased was run over and killed by a runaway tub on a gravity incline underground.
166	30th August, 5-30 A.M.	Kurkend mine, Kusunda P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Moshari Rajwar, (m.), 35, <i>Trolleyman.</i>	Coal	Deceased, who was supposed to have been asleep at the foot of a haulage incline, was struck by one of a set of five tubs which became uncoupled at the top and ran wild down the incline. He died from his injuries shortly afterwards. Inspection and inquiry made.
167	6th September, 7-30 A.M.	South Goluckdih mine, Jharia P. O., Bihar and Orissa.	South Goluckdih Coal Co.	Narain Sirdar, (m.), 50, <i>Sirdar.</i>	Coal	Deceased was struck by one of a set of seven tubs which ran wild on an incline as the result of the breaking of the drawbar of the topmost tub. He was killed almost instantly. Inspec- tion and inquiry made.
168	8th October, 2 P.M.	Mohpani mine, Mohpani P. O., Central Provinces.	Great Indian Peninsula Rail- way Co.	Kalari Kewat, (m.), 14, <i>Coal-carrier.</i>	Coal	Deceased was run over and killed by a train of tubs as it entered an underground loading station. Inspection and inquiry made.
169	17th November, 12-15 A.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation Ld.	Chur Singh, (m.), 25, <i>Motor-driver.</i>	Silver - lead - zinc.	Whilst deceased was driving an electric locomotive on an under- ground tramway, derailment, due to excessive speed, took place, and he was crushed between the locomotive and the timbering of the roadway. The injuries proved fatal.
170	21st November, 4-30 P.M.	Khewra mine, Khewra P. O., Punjab.	Government of India	Raja, (m.), 25, <i>Mule-driver.</i>	Salt	Deceased was knocked down and fatally injured by a runaway mule.
<b>UNDERGROUND MACHINERY—(2 deaths).</b>						
171	30th January, 11-45 A.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	B. P. Rander, (m.), 25, <i>Coal-cutter Foreman.</i>	Coal	Deceased was caught by the cutter picks of a coal-cutting machine and dragged under the coal. He received injuries from which he afterwards died. Inspection and inquiry made.
172	27th June, 3 A.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ld.	Kunchi Krishnan Nair, (m.), 20, <i>Miner.</i>	Silver - lead - zinc.	The belt driving a ventilating fan broke. Deceased, who was standing near by, but outside the fence, was struck by the belt, and sustained fatal injuries.
<b>SUNDRIES UNDERGROUND—(3 deaths).</b>						
173	7th February, 9 P.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ld.	Law Kyan, (m.), 26, <i>Miner.</i>	Silver - lead - zinc.	Deceased fell down an ore chute and sustained fatal injuries.

**APPENDIX II—contd.**

**Fatal Accidents, 1922—contd.**

Serial Number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>SUNDRIES UNDERGROUND—(8 deaths)—contd.</b>						
174	17th February, 8-30 A.M.	Khoodia mine, Mugma P. O., Bihar and Orissa.	Khoodia Coal Co., Ltd.	Chota Khara Manjhi, (m.), 27, Coal-cutter.	Coal	Deceased was standing on a loaded tram cutting roof coal, when a piece of coal 18" x 12" x 12" fell from a height of 8 feet on to his legs. In trying to avoid it he stepped backwards and fell over the side of the tram on to some pieces of coal. His spine was fractured and he died two hours later. Inspection and inquiry made.
175	5th July, 4 A.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ltd.	Kaloomarana, (m.), 19, Trucker.	Silver-lead-zinc.	Deceased was crushed between a truck and the timbering on an underground tramline. His injuries proved fatal.
176	8th July, 4-35 P.M.	Bararee mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Fagua Kandoo, (m.), 34, Trolleyman.	Coal	Deceased was assisting to replace a derailed tub on an underground tramline. His foot slipped and the wheel of the tub struck him on the leg fracturing it. Three days later he died from shock following amputation. Inspection and inquiry made.
177	12th September, 9 A.M.	Bhalgora mine, Jharia P. O., Bihar and Orissa.	Bhalgora Coal Co., Ltd.	Baroo Kauri, (m.), 22, Propping Mistry.	Coal	Deceased and seven other workmen were engaged in setting a prop in a seam 24 feet high. The prop swayed and fell, and, striking another prop 20 feet away, knocked it out. The end of the second prop struck deceased on the head with such force that he was rendered unconscious and died a few hours later from concussion of the brain. Inspection and inquiry made.
178	17th November, 11-30 A.M.	Govindpur mine, Katragarh P. O., Bihar and Orissa.	Govindpore Coal Co., Ltd.	Chaman Bhuiya, (m.), 25, Trolleyman.	Coal	Deceased was crushed between tubs on an underground tramway, sustaining injuries from which he died two days later. Inspection and inquiry made.
179	23rd November, 7 A.M.	Bararee mine, Jamadoba, P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Somaru, (m.), 18, Coal-cutter.	Coal	Deceased was loading coal which had been brought down by blasting, when a large piece of coal, weighing about 4 cwt., slipped down from a heap and fell upon him. He sustained injuries which caused death within a few hours. Inspection and inquiry made.

180	28th November, 9-30 A.M.	Bhaigora mine, Jharla P. O., Bihar and Orissa.	Bhaigora Coal Co., Ltd.	Somar Kandu, (m.), 38, Labourer.	Coal	Deceased was assisting seven other coolies in carrying a part of a steam pump when he complained of over exertion. He was taken to hospital where he died three days later from the effect of the overstrain. Inspection and inquiry made.
<b>SURFACE MACHINERY—(3 deaths).</b>						
181	10th July, 6-5 P.M.	Salanpur mine, Salanpur P. O., Bengal.	Borrea Coal Co., Ltd.	Dubraj Banri, (m.), 17, Labourer.	Coal	Deceased became entangled in a revolving shaft driving workshop machinery. He was killed instantly. Inspection and inquiry made.
182	23rd August, 2-30 P.M.	Bararee mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Tejoo Meah, (m.), 56, Underground Sirdar. Head	Coal	Deceased was one of four men who were raising a long and heavy column of steam pipes by means of a hand winch. The strain on the rope proved too much for the men and they let go of the handles, one of which struck deceased on the head with such force as to kill him instantly. Inspection and inquiry made.
183	25th October, 12-15 P.M.	Kustore North mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ltd.	Babu Lall, (m.), 18, Labourer.	Coal	Deceased who was apparently under the influence of drink, attempted to interfere with an endless-rope haulage engine whilst it was in motion. He was caught by the flywheel and killed instantly. Inspection and inquiry made.
<b>ON SURFACE RAILWAYS AND TRAMWAYS BELONGING TO THE MINE—(7 deaths).</b>						
184	14th January, 10-20 A.M.	Bokaro mine, Bokaro P. O., Bihar and Orissa.	East Indian Railway Co. and Bengal Nagpur Railway Co.	Soblal Chamar, (m.), 32, Trolleyman.	Coal	The front coupling of a tub accidentally caught in the top of a creeper chain, tilting the rear of the tub violently. The deceased, who clung to the back of the tub, was thrown through or over the fencing, falling to the ground 20 feet below. He died three days later. Inspection and inquiry made.
185	2nd February, 10-30 A.M.	South Kujama mine, Jharla P. O., Bihar and Orissa.	Bagdigi Kujama Collieries, Ltd.	Sanichar Dosad, (m.), 28, Trammer.	Coal	Deceased, while pushing a loaded tub, was struck by a second loaded tub pushed from behind. He received spinal injury from the effects of which he died two days later. Inspection and inquiry made.
186	20th February, 10-45 A.M.	Serampur mine, Giridih, P. O., Bihar and Orissa.	East Indian Railway Co.	Hiro Turi, (m.), 35, Labourer.	Coal	Deceased attempted to cross in front of a locomotive. He was knocked down and run over and sustained injuries from which he died shortly afterwards. Inspection and inquiry made.
187	29th April, 12-30 A.M.	Golukdih mine, Jharla P. O., Bihar and Orissa.	N. M. Choudhuri & Co.	Jhari Bhula, (m.), 30, Labourer.	Coal	Deceased attempted to board a colliery locomotive while it was in motion. He fell in front of the wheels and received injuries from which he afterwards died. Inspection and inquiry made.
188	2nd May, 5-30 P.M.	Bokaro mine, Bokaro P. O., Bihar and Orissa.	East Indian Railway Co. and Bengal Nagpur Railway Co.	Bahadur Raot, (m.), 42, Coal-cutter.	Coal	Deceased was knocked down and run over by a train of six tubs on a surface tramline. He sustained injuries which caused death within a few hours. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial Number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>ON SURFACE, RAILWAYS AND TRAMWAYS BELONGING TO THE MINE—(7 deaths)—contd.</b>						
189	3rd May, 12-30 P.M.	Khoodia mine, Mugma P. O., Bihar and Orissa.	Khoodia Coal Co., Ltd.	Surendra Kahar, (m.), 35, Surface trolleyman.	Coal	Deceased in attempting to mount the front buffer of a loaded tub which was running down a slight gradient, slipped and fell. The front wheel of the tub passed over his leg. He sustained a severe wound and died from tetanus eighteen days later. Inspection and inquiry made.
190	15th October, 8-30 A.M.	Shivrajpur mine, Shivrajpur P. O., Panch Mahals, Bombay Presidency.	Shivrajpur Syndicate, Ltd.	Ramadhin Mahadev, (m.), 32, Labourer.	Manganese ore	A truck ran wild on a slight gradient. Deceased, in trying to stop it, was struck down and killed.
<b>ELECTRICITY—(3 deaths).</b>						
191	19th May, 2-30 A.M.	Aldih mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ltd.	Ratan Gope, (m.), 38, Head Tindal.	Coal	An electrically driven pump had been lowered to a new position in a dip gallery underground. When all the connections were completed the electric fitter went to a fuse box some 200 yards away to switch on the current. The result was that several persons, who were handling the main cable at the time, received a severe shock and deceased, who was sitting down close to the switch box by the pump, also received a shock and was killed. The accident was due to a defective fuse-box and unsatisfactory earthing arrangements. Inspection and inquiry made.
192	6th July, 5 P.M.	Bhelatand mine, Sijua P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Hanif Meah, (m.), 8, Not employed.	Coal	Deceased was found in contact with one of the conductors of an overhead transmission line which had broken and was lying on the ground. Death was due to electrocution. Inspection and inquiry made.
193	17th July, 10 A.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Puarh Singh, (m.), 32, Labourer.	Coal	Deceased was one of a gang of coolies working on a sub-station in course of erection. Apparently for the purpose of reaching the other side of the building he walked along the top of one of the walls and touched the conductors of an overhead line carrying current at about 500 volts pressure which were only about 5' 6" in height at that point. He fell a distance of 16 feet and died almost at once. Inspection and inquiry made.



MISCELLANEOUS ON SURFACE—(12 deaths).

194	22nd January, 12 A.M.	Jamehari mine, Searsol P. O., Bengal.	Srimati Nistarini Dass	Ramprosad Bhor, (m.), 45, <i>Underground Sirdar.</i>	Coal	Deceased was washing himself outside a bathing tank when the walls of the tank, which were 7 feet high, burst. One of the walls fell on to deceased killing him instantly. Inspection and inquiry made.
195	22nd February, 4 A.M.	Saltore mine, Dishergarh P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Nitai Kuloo Garai, (m.), 38, <i>Trammer.</i>	Coal	Deceased went through a fence and jumped into a bunker, containing about 25 tons of sand, in order to recover a piece of cloth which had fallen. He was buried by the running sand and suffocated before he could be rescued. Inspection and inquiry made.
196	1st March, 8-30 A.M.	Hlaygadaung mine, Palaak P. O., Burma.	Hlaygadaung Concessions, Ld.	Bishun Sui, (m.), 50, <i>Labourer.</i>	Tin & Wolfram ores	Whilst at work in an open excavation in alluvial ground deceased lost his balance and fell a distance of about 7 feet. He sustained ruptures of the spleen and of a blood vessel, and died shortly after.
197	1st April, 10-30 A.M.	Central Kurkend mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ld.	Gour Punjabi, (m.), 50, <i>Labourer.</i>	Coal	Deceased was engaged in fastening a clamp on a guide rope which was being tightened by a winch rope. The winch rope was detached from the guide rope before the clamp was secured. The guide rope slipped through the clamp and struck deceased, who was sitting on two cross-beams supporting the clamp, knocking him down the shaft. He was killed instantly. Inspection and inquiry made.
198	25th April, 11-15 A.M.	Dishergarh West mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Ismile Mistry, (m.), 32, <i>Mason.</i>	Coal	Deceased was working on a ladder reared against the wall of a building. He overbalanced and fell a distance of 21 feet to the ground below, and was killed instantly. Inspection and inquiry made.
199	27th May, 9 P.M.	Lalpath mine, Chanda P. O., Central Provinces.	J. V. Padamsey & Co.	Ramshaya, (m.), 35, <i>Peon.</i>	Coal	Deceased was giving out oil to miners by the light of a lamp. The oil caught fire and his clothes became ignited. He sustained burns which proved fatal.
200	30th June, 3-30 P.M.	Aldih mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Raghu Turi, (m.), 24, <i>Labourer.</i>	Coal	Whilst engaged in oiling the bearings of the pulley on the top of a pithead frame, deceased fell through an opening in the platform on to the banking platform 29 feet below. He sustained injuries from which he died a few hours later. Inspection and inquiry made.
201	30th June, 5 P.M.	Asakuti mine, Katragarh P. O., Bihar and Orissa.	Royal Coal Co., Ld.	Tara Manjhi, (m.), 24, <i>Coal-cutter.</i>	Coal	Deceased was ascending the open cutting of an incline at the end of his day's work when the incline wall and a mass of earth weighing several tons fell on him, and killed him. Inspection and inquiry made.
202	31st July, 1-30 A.M.	Bhaga mine (Lodna Nos. 4 & 5 pits), Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., (1920) Ld.	Alladin, (m.), 29, <i>Labourer.</i>	Coal	A column of steam pipes in a shaft, 345 feet deep, was being dismantled by raising one pipe at a time by means of a hand winch on the surface. Apparently while being raised the pipe jammed on the rest of the column, and the stress became sufficient to break the winch rope between the winch and the head gear. The loose end of the rope coiled round deceased, who was standing close to the shaft mouth and crushed him so badly that he died almost immediately. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial Number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation or person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>MISCELLANEOUS ON SURFACE—(12 deaths)—contd.</b>						
203	3rd September, 11-45 A.M.	Shivrajpur mine, Shivrajpur, P. O., Panch Mahals, Bombay Presidency.	Shivrajpur Syndicate, Ld.	Girdhari Pema, (m.), 16, Labourer.	Manganese ore	Deceased was in a tunnel leading to a quarry and was about 15 feet from the portal. A rock, weighing some 5 cwt., was dislodged from the side of the quarry by workmen. This rock rolled into the tunnel and struck deceased causing fatal injuries.
204	7th November, 4 A.M.	Searsol Khas mine, Searsol P. O., Bengal.	S. Bagchee & Co., and Rani Shyama Sundari Debi.	Kuchla Bauri, (m.), 31, Pumpman.	Coal	Whilst deceased was sleeping under a shed the posts supporting the shed collapsed. The roof fell upon him, causing injuries from which he died shortly after. Inspection and inquiry made.
205	10th November, 3 P.M.	Central Kurkend mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ld.	Tula Ram, (m.), 60, Labourer.	Coal	Deceased was cutting earth close to or under a conical stack left for the purposes of measurement when the stack collapsed and fell on him. He sustained an injury to the brain, from the effects of which he died about three weeks later. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
<b>DEATHS NOT INCLUDED IN THE STATISTICS—(51 deaths).</b>							
1	Between 5th & 7th January, Unknown.	Central Sonardih mine, Katrasgarh P. O., Bihar and Orissa.	Central Sonardih Coal Concern	Buduram Brahmin, (m.), 22, Peon.	Coal	Not a mining accident	The body of deceased was found floating in a waterlogged incline. Inspection and inquiry made.
2	13th January, 3 P.M.	Shivrajpur mine, Shivrajpur P. O., Panch Mahals, Bombay Presidency.	Shivrajpur Syndicate, Ld.	Jumi Natha, (f.), 4.	Manganese ore	Not employed	Deceased accompanied her father who had been instructed to take shelter behind a wall whilst blasting operations were going on at a point some 200 feet distant. She was struck by flying debris and killed. Inspection and inquiry made.
3	10th January 9-40 A.M.	Kutchee Dhana mine, Ramkona P. O., Central Provinces.	Indian Manganese Co., Ld.	Miru, (f.), 4.	Manganese ore	Not employed	Deceased was run over whilst attempting to cross a surface tram-line. Her injuries proved fatal.
4	23rd January, Unknown.	Jogta mine, Sijua P. O., Bihar and Orissa.	Agabeg Bros.	Ramsuden Singh, (m.), 35, Peon.	Coal	Not a mining accident	Deceased and another person went to sleep in a room in which an open fire was burning. As all means of ventilation were closed he was asphyxiated. The other person recovered. Inspection and inquiry made.
5	26th January, 5 P.M.	Bansdeopur mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ld.	Mohan Meah, (m.), 3.	Coal	Not employed	Deceased accompanied his parents who were working in a quarry. He strayed beneath overhanging debris, which fell on him. He received injuries from which he afterwards died. Inspection and inquiry made.
6	27th January, 1-30 A.M.	Ghusick mine, Kalipahari P. O., Bengal.	Ghusick Coal Co.	(1) Huroo Pundit, (f.), 6. (2) Muni Pundit, (m.), 45, Brick-maker.	Coal	Not a mining accident	The deceased were sleeping in their hut, when a spark from a fire outside set on fire the straw thatched roof. Huroo was burnt to death and Muni was severely burnt, dying in hospital two days later. Inspection and inquiry made.
7	29th January, 3 A.M.	Harriladih mine, Jharia P. O., Bihar and Orissa.	Equitable Coal Co., Ld.	Moglar Gwalor, (m.), 25, Peon.	Coal	Not a mining accident	Deceased lay down in a room in which a coke fire was burning. The doors and windows being closed, there was no ventilation, and he was asphyxiated. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
<b>DEATHS NOT INCLUDED IN THE STATISTICS—(51 deaths)—contd.</b>							
8	6th March, 2 P.M.	Tiara mine, Jharia P. O., Bihar and Orissa.	Amarsingh Gowamal	Somaria Malla, (f.), 70	Coal	Not employed	Whilst drawing water from a well about 50 feet deep, and containing 3 feet of water, deceased overbalanced and fell to the bottom. She died a few minutes after being rescued. Inspection and inquiry made.
9	Unknown.	Budroochuck mine, Sijua P. O., Bihar and Orissa.	Budroochuck Coal Mining Co. Ltd.	Unknown, (m.), Unknown.	Coal	Not employed	Deceased was found dead at the bottom of a subsidence caused by mining operations. The subsidence had been fenced. Inspection and inquiry made.
10	19th March, 12-30 P.M.	Ramnagar mine, Pandaveswar P. O., Bengal.	Samla Ramnagar Collieries, Ltd.	Kanai Dhangor, (m.), 9.	Coal	Not employed	A woman who was carrying a basket of stone out of a shallow cutting on the surface, stumbled and a piece of stone fell out of the basket. The stone struck deceased on the head inflicting serious injury to which he succumbed soon afterwards. Inspection and inquiry made.
11	21st March, 9 P.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Agni Hazra, (f.), 9.	Coal	Not employed	Deceased fell into a boiler feed tank and was drowned. Inspection and inquiry made.
12	31st March, 1 P.M.	New Kusunda mine, Kusunda P. O., Bihar and Orissa.	New Kusunda Colliery, Ltd.	Chulan Mahato, (m.), 22, Hookman.	Coal	Not a mining accident	Whilst bathing in a portion of an abandoned quarry deceased was drowned. Inspection and inquiry made.
13	6th April, 1-30 P.M.	Searsol mine, Raniganj P. O., Bengal.	Searsol Coal Co., Ltd.	Parga Manjhi, (m.), 35, Coal-cutter.	Coal	Not a mining accident	Deceased, despite attempts to prevent him, jumped over the fence around the top of a winding shaft and fell to the bottom, a distance of 217 feet. He was killed instantly. Inspection and inquiry made.
14	12th April, 2 P.M.	Karmatand mine, Nawagarh P. O., Bihar and Orissa.	Sreeram Coal Co.	Suku Mahato, (m.), 30, Agriculturist.	Coal	Not employed	Deceased was robbing coal in a disused quarry when a mass of overburden, 17' x 7' x 3', fell and buried him. He was killed instantly. Inspection and inquiry made.

15	19th April, 7-30 P.M.	Angarpathra mine, Katrasgarh P. O., Bihar and Orissa.	National Coal Co., Ltd.	Kazim Khan, (m.), 46. <i>Watchman.</i>	Coal	Not a mining accident	Whilst in his living quarters the spilling of a lamp caused the clothing of deceased to catch fire. He sustained serious burns and died of heart failure ten days later. Inspection and inquiry made.
16	Found at 2 P.M., on 22nd April.	Durgapur mine, Chanda P. O., Central Provinces.	Chanda Coal Prospecting Syndicate, Ltd.	Pochi, (f.), 7.	Coal	Not employed	Deceased was found drowned in a water tank. The tank was fenced.
17	3rd May, 7-30 A.M.	Dandot mine, Dandot P. O., Punjab.	Rai Sahib Thakur Das Ramji Das.	Mahomed, (m.), 50.	Coal	Not employed	Whilst attempting to cross a self-acting incline on the surface, deceased was run over by a train of tubs. He sustained fatal injuries.
18	28th May, 9-30 P.M.	Ramnagar mine, Kulti P. O., Bengal.	Bengal Iron Co., Ltd.	Panchanan Maity, (m.), 15. Patal Tamuli, (m.), 28. Radha Nath Ghosh, (m.), 26.	Coal	Not a mining accident	A train of twenty loaded coal tubs was being drawn from a colliery to an ironworks. When it was passing the points of a branch line the thirteen rear tubs switched up the branch line and became derailed. The deceased persons, who were riding on the tubs against orders, were thrown off and fatally injured. Inspection and inquiry made.
19	31st May, 9 A.M.	South Bulliaree mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Brihospot Dusad, (m.), 32. <i>Onsetter.</i>	Coal	Not a mining accident	Deceased was found drowned in a boiler feed tank. Inspection and inquiry made.
20	19th June, 6 P.M.	Sijua mine, Sijua P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Somi Beldarin, (f.), 8.	Coal	Not employed	Deceased fell into a boiler feed tank and was drowned. Inspection and inquiry made.
21	23rd June, 6-30 P.M.	Kajora mine, Ondal P. O., Bengal.	Guzdar, Kajora Coal Co.	Surendra Bauri, (m.), 18. <i>Labourer.</i>	Coal	Not a mining accident	Deceased was unloading coal at a colliery wharf when he was struck by lightning and killed instantly. Inspection and inquiry made.
22	26th June, 4-30 A.M.	Dumarkunda mine, Barakar P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Jogin Deghoria, (m.), 46.	Coal	Not employed	Deceased was crossing a field when he appears to have tripped over and fallen upon, the bare conductors of an electric transmission line which were sagging close to the ground, owing to a branch having fallen and broken the line at the next span. He was found lying on one of the conductors, and had probably received a shock at approximately 300 volts pressure to earth. Inspection and inquiry made.
23	7th July, 8-30 P.M.	Benidih mine, Jharia P. O., Bihar and Orissa.	Benidih Colliery, Ltd.	Phuiny Beldarin, (f.), 35, <i>Coal-carrier.</i>	Coal	Not a mining accident	A woman, drawing water from a waterlogged quarry, fell into the water and was drowned. Inspection and inquiry made.
24	16th July, 8 A.M.	Simlabahal mine, Jharia P. O., Bihar and Orissa.	Bhalgora Coal Co., Ltd.	Kashi Ram Kahar, (m.), 14, <i>Labourer.</i>	Coal	Not a mining accident	Deceased was found drowned in a boiler feed tank. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1922—contd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
<b>DEATHS NOT INCLUDED IN THE STATISTICS—(51 deaths)—contd.</b>							
25	23rd July, 10-30 A.M.	East Nandi mine, Toposi P. O., Bengal.	H. F. Pilcher	Khudu Baurin, (f.), 30, Coal-carrier.	Coal	Not a mining accident	Deceased was lying asleep beneath a railway wagon with her head on the rail. Another wagon was shunted against the first wagon and caused it to move. The head of deceased was crushed beneath a wheel. She died within a few minutes. Inspection and inquiry made.
26	24th July, 3 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ltd.	Wong Hop, (m.), 30, Miner.	Tin and Wolfram ores	Not a mining accident	Deceased was asleep in a hut situated on a hill side, when a "land-slip" occurred. The hut was demolished and deceased buried. He sustained serious injuries and died a few hours later. Inspection and inquiry made.
27	3rd August, 8-30 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ltd.	Mg. Pe, (m.), 24, Miner.	Tin and Wolfram ores	Not a mining accident	Deceased was proceeding to work up a steep hill side during a heavy rain storm. A "land-slip" occurred, and he was completely buried, sustaining fatal injuries. Inspection and inquiry made.
28	3rd August, 8-30 P.M.	Chowrassio mine, Dishergarh P. O., Bihar and Orissa.	Equitable Coal Co., Ltd.	Bucha Bauri, (m.), 30.	Coal	Not employed	Whilst passing by after dark deceased fell from the top of a retaining wall 10 feet high. He received injuries from which he died next day. Inspection and inquiry made.
29	5th August, 2 P.M.	Khas Angarpathra mine, Katrasgarh P. O., Bihar and Orissa.	Khas Angarpathra Coal Co.	Janki Kuri, (m.), 8.	Coal	Not employed	Deceased was found drowned in a boiler feed tank. The tank was properly fenced. Inspection and inquiry made.
30	11th August, 5-30 P.M.	New Chandore mine, Katrasgarh P. O., Bihar and Orissa.	B. B. Trigunait	Sita Chamarin, (f.), 20, Coal-carrier.	Coal	Not a mining accident	Deceased fell into a well, 15 feet deep, and was drowned. Inspection and inquiry made.
31	12th August, 5 P.M.	Asakuti mine, Katrasgarh P. O., Bihar and Orissa.	Parascole Coal Co., Ltd.	Khari Bilaspuri, (f.), 2.	Coal	Not employed	Deceased was found drowned in an artificial excavation, 6 feet long and 2½ feet deep. Inspection and inquiry made.
32	14th August, 4 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., (1920) Ltd.	Mahuri Musor Bluiya, (f.), 7.	Coal	Not employed	Deceased's leg was caught between the incoming rope and the terminus wheel of a surface haulage. She received injuries from which she died three hours later. Inspection and inquiry made.

33	21st August, 5 P.M.	Banali mine, Raniganj P. O., Bengal.	Parascole Coal Co., Ltd.	Samia Kolo, (f.), 2.	Coal	Not employed	Deceased was found drowned in a pool of flood water, 18 inches deep. Inspection and inquiry made.
34	22nd September, 5 P.M.	Karmatand mine, Nawagarh P. O., Bihar and Orissa.	Sreeram Coal Co.	Mullwa Mahara, (f.), 11.	Coal	Not employed	Deceased got over the wall fencing an incline, fell into accumulated water, and was drowned. Inspection and inquiry made.
35	24th September, 6 A.M.	West Bansjora mine, Bansjora P. O., Bihar and Orissa.	West Bansjora Coal Con- cern	Modho Beldar, (m.), 45, <i>Coal-carrier.</i>	Coal	Not a mining accident	Deceased, who appears to have been bathing in a water-logged quarry, went out of his depth and was drowned. Inspection and inquiry made.
36	10th October, 4 A.M.	Kajora mine, Ondal P. O., Bengal.	Guzdar, Kajora Coal Co.	Dulali Korani, (f.), 2½.	Coal	Not employed	The deceased infant was sleeping beside her mother in a mine when a mass of roof coal, 2' x 1'6" x 5", fell from a height of 13 feet. She received injuries from which she died an hour later. Two other persons were injured. Inspection and inquiry made.
37	21st October, 1 P.M.	Alkusa North mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Asso- ciation, Ltd.	Lutchmania, (f.), 6.	Coal	Not employed	Deceased fell into a bathing tank and was drowned. Inspection and inquiry made.
38	27th October, 11-30 A.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	Guli Gope, (m.), 40, <i>Carter.</i>	Coal	Not a mining accident	Deceased, who was apparently bathing at the edge of an old incline which was full of water, fell into the water and was drowned. Inspection and inquiry made.
39	6th November, 2-15 P.M.	Upper Mandra mine, Nawagarh P. O., Bihar and Orissa.	M. G. Roy	Kisari, (f.), 6.	Coal	Not a mining accident	Deceased whilst bathing fell into a quarry containing water to a depth of about 12 feet, and was drowned. Inspection and inquiry made.
40	27th November, Unknown.	Bolompore mine, Raniganj P. O., Bengal.	Bolompore Coal Co., Ltd.	Gobinda Prasad Gos- wami, (m.), 70.	Coal	Not employed	Deceased was found drowned in an old water-logged shaft, 60 feet deep. Inspection and inquiry made.
41	2nd December, 2 A.M.	Sendra mine, Bansjora P. O., Bihar and Orissa.	Sendra Coal Co., Ltd.	Lashman Dosad, (m.), 24, <i>Engine Khalasi.</i>	Coal	Not a mining accident	Whilst he was sleeping indoors near a fire the clothing of deceased caught fire. He was severely burned and subsequently died.
42	14th December, Unknown.	Ramjibanpur mine, Sitarampur P. O., Bengal.	Ramjibanpur Coal Co.	Jogi Dosad, (m.), 30.	Coal	Not employed	The body of deceased was found at the bottom of a disused shaft 75 feet deep. Inspection and inquiry made.

APPENDIX II—concl'd.

Fatal Accidents, 1922—cont'd.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
<b>DEATHS NOT INCLUDED IN THE STATISTICS—(51 deaths)—concl'd.</b>							
43	23rd December, 5-20 P.M.	Kustore North mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ltd.	Jagna Dosad, (m.), 14, Shale-picker.	Coal	Not a mining accident	Deceased was run over and killed during shunting operations on a surface railway not belonging to the mine. Inspection and inquiry made.
44	28th December, 8-30 A.M.	West Tetturiya mine, Katrasgarh P. O., Bihar and Orissa.	West Tetturiya Collieries, Ltd.	Radhia Bhuiya, (f.), 3.	Coal	Not a mining accident	The deceased sustained fatal burning injuries whilst at play near a domestic fire.
45	28th or 29th December, Between 9 P.M. and 6 A.M.	Kendwadih mine, Nawagarh P. O., Bihar and Orissa.	Kendwadih Coal Co.,	Mongal Bhuiya, (m.), 36, Budu Bhuiya, (m.), 18, Sukar Bhuiya, (m.), 20, Jugan Bhuiya, (m.), 17. Labourers.	Coal	Not a mining accident	The four deceased were detailed to guard a partly unloaded covered truck of tramway sleepers. They went inside the truck, made a fire, closed all openings and went to sleep. Early next morning they were found dead having been suffocated by the fumes from the fire. Inspection and inquiry made.



## APPENDIX II—contd.

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1922.

PROVINCE.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.			SERIOUS ACCIDENTS.			DEATH-RATE PER 1,000 PERSONS EMPLOYED.					
			Number of separate fatal accidents.	NUMBER OF DEATHS.		Number of serious non-fatal accidents.	NUMBER OF PERSONS SERIOUSLY INJURED.		Below ground.	Above ground.	Below and above ground.			
				Below ground.	Above ground.		Total deaths.	Below ground.				Above ground.	Total number of persons injured.	
Bihar	Lakhimpur . . . . .	3,051	7	7	..	7	49	39	10	49	3-34	..	2-29	
	Naga Hills . . . . .	550	1	1	..	1	1	2	..	2	3-80	..	1-80	
	Sibsagar . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	
	TOTAL	3,607	8	8	..	8	50	41	10	51	3-39	..	2-22	
Baluchistan	Kalat . . . . .	30	..	..	..	..	..	..	..	..	..	..	..	
	Loralai . . . . .	35	..	..	..	..	..	..	..	..	..	..	..	
	Quetta, Pishin . . . . .	157	2	2	..	2	..	..	..	..	20-41	..	12-74	
	Sibi, Khost . . . . .	1,032	4	16	..	16	2	3	..	3	27-21	..	15-50	
	TOTAL	1,254	6	18	..	18	2	3	..	3	24-79	..	14-35	
Bengal	Bankura, Raniganj . . . . .	161	..	..	..	..	..	..	..	..	..	..	..	
	Birbhum .. . . .	350	..	..	..	..	..	..	..	..	..	..	..	
	Burdwan .. . . .	44,382	45	51	7	58	33	23	10	33	1-91	0-40	1-31	
	TOTAL	44,893	45	51	7	58	33	23	10	33	1-89	0-39	1-29	
Bihar and Orissa	Hazaribagh	Bokaro . . . . .	9,947	4	2	2	4	8	2	6	8	0-37	0-44	0-40
		Giridih . . . . .	7,229	3	2	1	3	17	14	3	17	0-45	0-36	0-41
		Jharia . . . . .	2,501	3	3	..	3	1	..	1	1	2-89	..	1-20
		Ramgarh . . . . .	161	1	1	..	1	..	..	..	..	11-90	..	6-21
	Manbhum	Jharia . . . . .	86,644	80	75	11	86	89	65	26	91	1-50	0-30	0-99
		Raniganj . . . . .	10,137	9	10	2	12	6	6	2	8	1-79	0-44	1-18
	Pelamau, Daltonganj . . . . .	277	1	1	..	1	1	1	..	1	6-13	..	3-61	
	Sambalpur, Hingir-Rampur . . . . .	797	..	..	..	..	1	1	..	1	..	..	..	
	Sonthal Parganas, Jainty . . . . .	1,242	2	2	..	2	1	1	..	1	2-31	..	1-61	
	.. Raniganj . . . . .	715	..	..	..	..	..	..	..	..	..	..	..	
TOTAL	119,650	103	96	16	112	124	90	38	128	1-40	0-31	0-94		
Burma	Southern Shan States . . . . .	65	1	1	..	1	..	..	..	..	26-32	..	15-38	
Central Provinces	Betul . . . . .	133	1	1	..	1	..	..	..	..	13-33	..	7-52	
	Chanda, Ballarpur . . . . .	2,650	2	1	1	2	3	1	2	3	0-57	1-13	0-75	
	Chhindwara, Pench Valley . . . . .	8,286	5	5	..	5	11	8	3	11	1-01	..	0-60	
	Narsinghpur, Mohpani . . . . .	2,036	1	1	..	1	6	5	1	6	0-75	..	0-49	
	Yeotmal . . . . .	95	..	..	..	..	..	..	..	..	..	..	..	
TOTAL	13,200	9	8	1	9	20	14	6	20	0-98	0-20	0-68		

## APPENDIX II—contd.

Table No. 2—contd.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1922—contd.

PROVINCE.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.			SERIOUS ACCIDENTS.			DEATH-RATE 1,000 PER EMPLOYE				
			Number of separate fatal accidents.	NUMBER OF DEATHS.		Number of serious non-fatal accidents.	NUMBER OF PERSONS SERIOUSLY INJURED.		Below ground.	Above ground.			
				Below ground.	Above ground.		Total deaths.	Below ground.			Above ground.	Total number of persons injured.	
Punjab	Jhelum . . . . .	1,390	2	3	..	3	2	2	..	2	3.61	..	
	Mianwali . . . . .	183	..	..	..	..	6	1	5	6	..	..	
	Shahpur . . . . .	113	..	..	..	..	..	..	..	..	..	..	
	<b>TOTAL</b>	<b>1,686</b>	<b>2</b>	<b>3</b>	<b>..</b>	<b>3</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>8</b>	<b>3.19</b>	<b>..</b>	
<b>GRAND TOTAL (COAL)</b>		<b>184,355</b>	<b>174</b>	<b>185</b>	<b>24</b>	<b>209</b>	<b>237</b>	<b>174</b>	<b>69</b>	<b>243</b>	<b>1.72</b>	<b>0.31</b>	
Bihar and Orissa	<b>B.—MICA.</b>												
	Bhagalpur . . . . .	..	..	..	..	..	..	..	..	..	..	..	
	Gaya . . . . .	1,518	..	..	..	..	..	..	..	..	..	..	
	Hazaribagh . . . . .	7,877	3	3	..	3	1	1	..	1	0.63	0.	
	Monghyr . . . . .	109	..	..	..	..	..	..	..	..	..	..	
Sambalpur . . . . .	115	..	..	..	..	..	..	..	..	..	..		
<b>TOTAL</b>	<b>9,610</b>	<b>3</b>	<b>3</b>	<b>..</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>..</b>	<b>1</b>	<b>0.53</b>	<b>..</b>	<b>0.</b>	
Madras	Nellore . . . . .	929	..	..	..	..	..	..	..	..	..	..	
	Nilgiris . . . . .	32	..	..	..	..	..	..	..	..	..	..	
	<b>TOTAL</b>	<b>961</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>	
Rajputana . . . . .	Ajmer-Morwara . . . . .	525	..	..	..	..	..	..	..	..	..	..	
<b>GRAND TOTAL (MICA)</b>		<b>11,105</b>	<b>3</b>	<b>3</b>	<b>..</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>..</b>	<b>1</b>	<b>0.45</b>	<b>0.</b>	
Bombay . . . . .	Panch Mahals . . . . .	1,605	2	..	2	2	5	1	4	5	..	5.10 1.2	
Central Provinces .	Balaghat . . . . .	4,355	..	..	..	..	5	5	1	6	..	..	
	Bhandara . . . . .	978	..	..	..	..	1	..	1	1	..	..	
	Chhindwara . . . . .	958	..	..	..	..	2	..	2	2	..	..	
	Jubbulpore . . . . .	26	..	..	..	..	..	..	..	..	..	..	
	Nagpur . . . . .	3,585	2	3	..	3	1	..	1	1	1.10	0.8	
<b>TOTAL</b>	<b>9,902</b>	<b>2</b>	<b>3</b>	<b>..</b>	<b>3</b>	<b>9</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>0.41</b>	<b>..</b>	<b>0.3</b>	
Madras . . . . .	Vizagapatam . . . . .	518	..	..	..	..	..	..	..	..	..	..	
<b>GRAND TOTAL (MANGANESE ORE).</b>		<b>12,025</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>14</b>	<b>6</b>	<b>9</b>	<b>15</b>	<b>0.34</b>	<b>0.03</b>	<b>0.45</b>

## APPENDIX II—contd.

Table No. 2—contd.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1922—contd.

PROVINCE.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.			SERIOUS ACCIDENTS.			DEATH-RATE PER 1,000 PERSONS EMPLOYED.				
			Number of separate fatal accidents.	NUMBER OF DEATHS.		Number of serious non-fatal accidents.	NUMBER OF PERSONS SERIOUSLY INJURED.		Below ground.	Above ground.	Below and above ground.		
				Below ground.	Above ground.		Total deaths.	Below ground.				Above ground.	Total number of persons injured.
<b>D.—LIMESTONE.</b>													
Uttar Pradesh	Northern Shan States . . . . .	30	..	..	..	..	..	..	..	..	..	..	
Central Provinces . . . . .	Bilaspur . . . . .	316	..	..	..	..	..	..	..	..	..	..	
	Jubbulpore-Katni . . . . .	3,840	..	..	..	..	1	..	1	1	..	..	
	TOTAL . . . . .	4,156	..	..	..	..	1	..	1	1	..	..	
	GRAND TOTAL (LIMESTONE).	4,186	..	..	..	..	1	..	1	1	..	..	
<b>E.—SALT.</b>													
Punjab . . . . .	Jhelum . . . . .	1,210	5	4	1	5	5	5	..	5	3-43	22-22	4-13
	Mianwali . . . . .	69	2	2	..	2	..	..	..	..	28-98	..	28-98
	Shahpur . . . . .	83	..	..	..	..	..	..	..	..	..	..	..
	GRAND TOTAL (SALT)	1,362	7	6	1	7	5	5	..	5	4-56	22-22	5-14
<b>F.—GEMS.</b>													
Uttar Pradesh	Katha (Rubies, etc.) . . . . .	1,254	..	..	..	..	1	..	1	1	..	..	..
<b>G.—SLATE.</b>													
Punjab and Orissa . . . . .	Monghyr . . . . .	420	..	..	..	..	..	..	..	..	..	..	..
	Gurdaspur . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
	Gurgaon . . . . .	154	..	..	..	..	..	..	..	..	..	..	..
Punjab	Kangra . . . . .	164	..	..	..	..	..	..	..	..	..	..	..
	TOTAL . . . . .	318	..	..	..	..	..	..	..	..	..	..	..
	GRAND TOTAL (SLATE)	738	..	..	..	..	..	..	..	..	..	..	..
<b>H.—GOLD.</b>													
Punjab and Orissa . . . . .	Singhbhum . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	Anantapur . . . . .	509	1	1	..	1	2	..	2	2	9-43	..	1-96
	GRAND TOTAL (GOLD)	509	1	1	..	1	2	..	2	2	9-43	..	1-96
<b>I.—IRON ORE.</b>													
Punjab and Orissa . . . . .	Puri . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
	Singhbhum . . . . .	1,730	1	3	..	3	..	..	..	..	2-65	..	1-73
	TOTAL . . . . .	1,730	1	3	..	3	..	..	..	..	2-65	..	1-73
Uttar Pradesh	Mandalay . . . . .	46	..	..	..	..	..	..	..	..	..	..	..
	Northern Shan States . . . . .	364	..	..	..	..	2	..	2	2	..	..	..
	TOTAL . . . . .	410	..	..	..	..	2	..	2	2	..	..	..
Rajputana . . . . .	Ajmer-Merwara . . . . .	30	..	..	..	..	..	..	..	..	..	..	..
	GRAND TOTAL (IRON ORE)	2,170	1	3	..	3	2	..	2	2	2-77	..	1-38



## APPENDIX II—contd.

Table No. 2—concl'd.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1922—concl'd.

PROVINCE.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.			DEATH-RATE PER 1,000 PERSONS EMPLOYED.			
			Number of separate fatal accidents.	NUMBER OF DEATHS.		Total deaths.	Number of serious non-fatal accidents.	NUMBER OF PERSONS SERIOUSLY INJURED.		Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
				Below ground.	Above ground.			Below ground.	Above ground.				
<b>P.—LEAD ORE.</b>													
Burma . . . . .	Northern Shan States . . . . .	1,820	8	8	..	8	23	20	4	24	6.25	..	4.40
Central Provinces . . . . .	Drug . . . . .	34	..	..	..	..	..	..	..	..	..	..	..
	<b>GRAND TOTAL (LEAD ORE).</b>	1,854	8	8	..	8	23	20	4	24	6.16	..	4.31
<b>Q.—TIN ORE.</b>													
Burma . . . . .	Mergui . . . . .	614	4	3	1	4	..	..	..	..	5.76	10.75	6.51
	Tavoy . . . . .	2,306	1	1	..	1	..	..	..	..	0.56	..	0.43
	Thaton . . . . .	38	..	..	..	..	..	..	..	..	..	..	..
	<b>GRAND TOTAL (TIN ORE)</b>	2,958	5	4	1	5	..	..	..	..	1.72	1.59	1.60
<b>R.—STEATITE.</b>													
Central Provinces . . . . .	Jubbulpore . . . . .	41	..	..	..	..	..	..	..	..	..	..	..
Madras . . . . .	Nellore . . . . .	25	..	..	..	..	..	..	..	..	..	..	..
	<b>GRAND TOTAL (STEATITE)</b>	66	..	..	..	..	..	..	..	..	..	..	..
<b>S.—APATITE.</b>													
Bihar and Orissa . . . . .	Singhbhum . . . . .	89	..	..	..	..	..	..	..	..	..	..	..
<b>T.—GRAPHITE.</b>													
Central Provinces . . . . .	Betul . . . . .	5	..	..	..	..	..	..	..	..	..	..	..
<b>U.—OCHRE.</b>													
Bihar and Orissa . . . . .	Puri . . . . .	34	..	..	..	..	..	..	..	..	..	..	..
Central Provinces . . . . .	Jubbulpore . . . . .	215	..	..	..	..	..	..	..	..	..	..	..
	<b>GRAND TOTAL (OCHRE)</b>	249	..	..	..	..	..	..	..	..	..	..	..
<b>V.—BARYTES.</b>													
Madras . . . . .	Kurnool . . . . .	194	..	..	..	..	..	..	..	..	..	..	..
	<b>GRAND TOTAL (ALL MINES).</b>	228,511	205	215	28	243	292	208	92	300	1.57	0.31	1.06

## APPENDIX II—contd.

Table No. 3.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1922, classified according to the age and sex of the workers.

MINERAL.	PROVINCE AND MINERAL FIELD.	Number of separate fatal accidents.	NUMBER OF DEATHS.								TOTAL BELOW AND ABOVE GROUND.	
			BELOW GROUND.				ABOVE GROUND.					
			Adult males.	Adult females.	Children (under 12).	TOTAL.	Adult males.	Adult females.	Children (under 12).	TOTAL.		
COAL . . . . .	Assam . . . . .		7	7	..	..	7	..	..	..	..	7
	{ Lakhimpur . . . . .		1	1	..	..	1	..	..	..	..	1
	{ Naga Hills . . . . .											
	TOTAL . . . . .		8	8	..	..	8	..	..	..	..	8
	Baluchistan . . . . .		2	2	..	..	2	..	..	..	..	2
	{ Quetta, Pishin . . . . .		4	16	..	..	16	..	..	..	..	16
	{ Sibi, Khost . . . . .											
	TOTAL . . . . .		6	18	..	..	18	..	..	..	..	18
	Bengal, Burdwan, Raniganj . . . . .		45	43	8	..	51	7	..	..	7	58
	Bihar and Orissa . . . . .		4	2	..	..	2	2	..	..	2	4
	{ Hazaribagh . . . . .		3	..	2	..	2	1	..	..	1	3
	{ Jharia . . . . .		3	1	2	..	3	..	..	..	..	3
	{ Ramgarh . . . . .		1	1	..	..	1	..	..	..	..	1
	{ Manbhum . . . . .		80	65	9	1	75	10	..	1	11	86
	{ Raniganj . . . . .		9	10	..	..	10	2	..	..	2	12
	{ Palamu, Daltonganj . . . . .		1	1	..	..	1	..	..	..	..	1
	{ Sambalpur, Hingir-Rampur . . . . .		..	..	..	..	..	..	..	..	..	..
{ Sonthal Parganas . . . . .		2	2	..	..	2	..	..	..	..	2	
{ Jainty . . . . .		..	..	..	..	..	..	..	..	..	..	
{ Raniganj . . . . .		..	..	..	..	..	..	..	..	..	..	
TOTAL . . . . .		103	82	13	1	96	15	..	1	16	112	
Burma, Southern Shan States . . . . .		1	1	..	..	1	..	..	..	..	1	
Central Provinces . . . . .		1	1	..	..	1	..	..	..	..	1	
{ Betul . . . . .		2	1	..	..	1	1	..	..	1	2	
{ Chanda . . . . .		5	4	1	..	5	..	..	..	..	5	
{ Chhindwara . . . . .		1	1	..	..	1	..	..	..	..	1	
{ Narsinghpur . . . . .												
TOTAL . . . . .		9	7	1	..	8	1	..	..	1	9	
Punjab, Jhelum . . . . .		2	3	..	..	3	..	..	..	..	3	
TOTAL (COAL) . . . . .		174	162	22	1	185	23	..	1	24	200	

## APPENDIX II—contd.

Table No. 3—concl'd.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1922, classified according to the age and sex of the workers—concl'd.

MINERAL.	PROVINCE AND MINERAL FIELD	Number of separate fatal accidents.	NUMBER OF DEATHS.								TOTAL BELOW AND ABOVE GROUND.
			BELOW GROUND.				ABOVE GROUND.				
			Adult males.	Adult females.	Children (under 12).	TOTAL.	Adult males.	Adult females.	Children (under 12).	TOTAL.	
MICA . . . . .	Bihar and Orissa, Hazaribagh . . . . .	3	2	1	..	3	..	..	..	..	3
	Madras, Nellore . . . . .	..	..	..	..	..	..	..	..	..	..
	TOTAL (MICA) . . . . .	3	2	1	..	3	..	..	..	..	3
MANGANESE ORE	Bombay, Panch Mahals . . . . .	2	..	..	..	..	2	..	..	2	2
	Central Provinces, Nagpur . . . . .	2	3	..	..	3	..	..	..	..	3
	TOTAL (MANGANESE ORE) . . . . .	4	3	..	..	3	2	..	..	2	5
SALT . . . . .	Punjab . . . . .	5	3	1	..	4	1	..	..	1	5
	{ Jholum . . . . .	2	2	..	..	2	..	..	..	..	2
	{ Mianwali . . . . .	2	2	..	..	2	..	..	..	..	2
TOTAL (SALT) . . . . .	7	5	1	..	6	1	..	..	1	7	
GOLD . . . . .	Madras, Anantapur . . . . .	1	1	..	..	1	..	..	..	..	1
IRON ORE . . . . .	Bihar and Orissa, Singhbhum . . . . .	1	3	..	..	3	..	..	..	..	3
WOLFRAM ORE . . . . .	Burma . . . . .	..	..	..	..	..	..	..	..	..	..
	{ Mergui . . . . .	2	2	..	..	2	..	..	..	..	2
	{ Tavoy . . . . .	2	2	..	..	2	..	..	..	..	2
TOTAL (WOLFRAM ORE) . . . . .	2	2	..	..	2	..	..	..	..	2	
TIN ORE . . . . .	Burma . . . . .	4	3	..	..	3	1	..	..	1	4
	{ Mergui . . . . .	1	1	..	..	1	..	..	..	..	1
	{ Tavoy . . . . .	1	1	..	..	1	..	..	..	..	1
TOTAL (TIN ORE) . . . . .	5	4	..	..	4	1	..	..	1	5	
LEAD ORE . . . . .	Burma, Northern Shan States . . . . .	8	8	..	..	8	..	..	..	..	8
GRAND TOTAL (ALL MINERALS) . . . . .		205	190	24	1	215	27	..	1	28	243

## APPENDIX II—concl'd.

Table No. 4.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1922, classified according to cause of accident.

Mineral worked.	Number of separate fatal accidents.	NUMBER OF PERSONS KILLED.											DEATH-RATE PER 1,000 PERSONS EMPLOYED.			
		Explosions of fire-damp.	Falls of roof.	Falls of side.	In shafts.	Suffocation by gases.	By explosives.	Irruptions of water.	Haulage.	Miscellaneous below ground.	Surface.	Electricity.	Total deaths.	Below ground.	Above ground.	Below and above ground.
Coal . . .	174	21	53	52	32	..	7	1	14	7	10	3	209	1.72	0.31	1.13
Clay . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gold . . .	1	..	..	..	1	..	..	..	..	..	..	..	1	0.43	..	1.00
Iron Ore . . .	1	..	..	3	..	..	..	..	..	..	..	..	3	2.17	..	1.38
Lead Ore . . .	8	..	..	..	2	..	..	..	3	3	..	..	8	6.16	..	4.31
Manganese Ore . . .	4	..	..	3	..	..	..	..	..	..	2	..	5	0.34	0.63	0.42
Mica . . .	3	..	1	2	..	..	..	..	..	..	..	..	3	0.45	..	0.27
Salt . . .	7	..	1	1	..	..	2	..	3	..	..	..	7	4.56	22.22	5.14
Tin Ore . . .	5	..	..	4	..	..	..	..	..	..	1	..	5	1.72	1.50	1.60
Wolfram Ore . . .	2	..	2	..	..	..	..	..	..	..	..	..	2	11.98	..	10.05
<b>TOTAL 1922</b>	<b>205</b>	<b>21</b>	<b>57</b>	<b>65</b>	<b>35</b>	<b>..</b>	<b>9</b>	<b>1</b>	<b>20</b>	<b>10</b>	<b>22</b>	<b>3</b>	<b>243</b>	<b>1.57</b>	<b>0.31</b>	<b>1.00</b>
<b>TOTAL PRECEDING YEAR.</b>	<b>232</b>	<b>15</b>	<b>81</b>	<b>91</b>	<b>22</b>	<b>..</b>	<b>20</b>	<b>..</b>	<b>32</b>	<b>12</b>	<b>20</b>	<b>..</b>	<b>203</b>	<b>1.72</b>	<b>0.26</b>	<b>1.17</b>
<b>DIFFERENCE</b>	<b>-27</b>	<b>+6</b>	<b>-24</b>	<b>-26</b>	<b>+13</b>	<b>..</b>	<b>-11</b>	<b>+1</b>	<b>-12</b>	<b>-2</b>	<b>+2</b>	<b>+3</b>	<b>-50</b>	<b>-0.15</b>	<b>+0.05</b>	<b>-0.11</b>



## APPENDIX III.

## PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901.

Statement of prosecutions under the Indian Mines Act, 1901, during the year 1922.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	REMARKS.
Assam	Lakhimpur	1	1	...	Section 21, Special Rule 71	Accused was acquitted.
	Bankura	1	1	...	Section 20, Rules 1, 3 and 7 of Notification No. 864-68-20, dated the 10th March 1904.	Accused was acquitted.
	Burdwan	1	1	1	Section 13 (1) and Section 20, Rule 47 of Notification No. 2968-82, dated the 21st April 1906, as amended by Notification No. 894-82, dated the 26th January 1907, and Notification No. 9709-131, dated the 23rd October 1908.	
	Do.	1	2	1	Section 15(2) and Section 20, Rule 7 of Notification No. 864-68-20, dated the 10th March 1904.	One accused was acquitted.
	Do.	1	2	1	Section 20, Rules 1, 3 and 9 of Notification No. 864-68-20, dated the 10th March 1904.	One accused was discharged.
Bengal	Do.	1	2	2	Section 20, Rules 2, 19 and 20 of Notification No. 864-68-20, dated the 10th March 1904.	
	Do.	1	2	2	Section 20, Rules 3 and 7 of Notification No. 864-68-20, dated the 10th March 1904.	
	Do.	1	2	1	Section 20, Rules 3, 7 and 19 of Notification No. 864-68-20, dated the 10th March 1904.	Case against one accused was dismissed.
	Do.	1	1	...	Section 20, Rule 19 of Notification No. 864-68-20, dated the 10th March 1904, and Rule 3 of Bengal Government Notification No. 3970-Com., dated the 28th August 1918.	Accused was acquitted.
	Do.	1	1	...	Section 21, Special Rule 4	Withdrawn.
	Do.	1	2	2	" " " Rules 38, 40 and 41	
	Do.	1	1	...	" " " Rules 39 and 40	Case dismissed.
	Do.	1	1	...	" " " Rules 64 to 67	Withdrawn.
	Do.	1	1	1	" " " Rule 78	
	Do.	Hazaribagh	7	2	...	Section 20, Rule 1 of Notification No. 11793-103, dated the 30th December 1908, as amended by Notifications No. 5072-113, dated the 1st July 1916, and No. M.-498, dated the 29th June 1922.
Bihar and Orissa	Do.	6	6	6	Do. do. do.	
	Manbhurn	1	2	2	Section 13 (1)	
	Do.	1	1	1	Section 13 (1) and Section 20, Rule 46 of Notification No. 864-68-20, dated the 10th March 1904.	
	Do.	1	1	1	Section 13 (1) and Section 20, Rule 47 of Notification No. 864-68-20, dated the 10th March 1904.	

APPENDIX III—*contd.*PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901—*contd.*Statement of prosecutions under the Indian Mines Act, 1901, during the year 1922—*contd.*

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	REMARKS.
Bihar and Orissa — <i>contd.</i>	Manbhum .	1	1	...	Section 15 (1) . . . . .	<i>Accused was acquitted.</i>
	Do. .	1	1	1	Do. . . . .	
	Do. .	1	1	...	Section 16 . . . . .	<i>Case dismissed.</i>
	Do. .	1	3	2	Section 20, Rule 3 of Notification No. 864-68—20, dated the 10th March 1904.	<i>One accused was acquitted.</i>
	Do. .	1	1	1	Section 20, Rule 4 of do. do.	
	Do. .	1	1	1	Section 20, Rules 3 and 7 of do. do.]	
	Do. .	1	2	2	Section 20, Rules 3 and 7 of Notification No. 864-68—20, dated the 10th March 1904, and Rule 3 of Bihar and Orissa Government Notification No. 11761-M., dated the 23rd August 1918.	
	Do. .	1	2	1	Section 20, Rules 3, 4 and 17 of Notification No. 864-68—20, dated the 10th March 1904.	<i>Case against one accused withdrawn.</i>
	Do. .	1	2	2	Section 20, Rules 3, 7 and 19 of do. do.	
	Do. .	1	2	2	Section 20, Rule 7 of do. do. .	
	Do. .	1	2	2	Section 20, Rules 7 and 13 of do. do. and Rule 3 of Bihar and Orissa Government Notification No. 11761-M., dated the 23rd August 1918.	
	Do. .	1	1	1	Section 20, Rules 7 and 22 of Notification No. 864-68—20, dated the 10th March 1904, and Rule 2 of Bihar and Orissa Government Notification No. 11761-M., dated the 23rd August 1918.	
	Do. .	1	1	1	Section 20, Rule 19 of Notification No. 864-68—20, dated the 10th March 1904.	
	Do. .	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated the 30th December 1908, as amended by Notifications No. 5072—113, dated the 1st July 1916, and No. M-498, dated the 29th June 1922.	
	Do. .	1	1	1	Section 21, Special Rule 4 . . . . .	
	Do. .	1	1	1	" " " " 5 . . . . .	
	Do. .	1	1	...	" " " " 5 . . . . .	<i>Accused absconded.</i>
Monghyr .	1	2	1	Section 20, Rule 1 of Notification No. 11793—103, dated the 30th December 1908, as amended by Notifications No. 5072—113, dated the 1st July 1916, and No. M-498, dated the 29th June 1922.	<i>One accused acquitted.</i>	
Do. .	1	2	1	Do. do. do.	<i>Do.</i>	
Do. .	1	2	1	Do. do. do.	<i>Do.</i>	
Do. .	1	3	...	Do. do. do.	<i>Accused not traced.</i>	

## APPENDIX III—concl'd.

## PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901—concl'd.

Statement of prosecutions under the Indian Mines Act, 1901, during the year 1922—concl'd.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	REMARKS.
Central Provinces	Chhindwara .	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated the 30th December 1908, as amended by Notifications No. 5072—113, dated the 1st July 1916, and No. M-498, dated the 29th June 1922.	
	Do. .	1	2	2	Do. do. do.	
	Do. .	1	1	1	Section 20, Rule 8 of do. do.	
	Do. .	1	1	1	Section 21, Special Rule 9 . . .	
	Jubbulpore .	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated the 30th December 1908, as amended by Notifications No. 5072—113, dated the 1st July 1916, and No. M-498, dated the 29th June 1922. -	
Delhi	Delhi .	1	2	1	Do. do. do.	One accused was acquitted.
	Do.	1	1	...	Do. do. do.	Accused died.
Punjab	Shahpur .	1	2	...	Do. do. do.	Withdrawn.

**APPENDIX IV.**  
**MISCELLANEOUS.**

**Statement No. 1.**

List of Inspection Circles.

No. 1 Circle.	No. 2 Circle.
1. All mines in Baluchistan.	1. All mines in Assam.
2. All mines in Bihar and Orissa except mines in the district of the Sonthal Parganas and such mines in the district of Manbhum as lie west of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the district.	2. All mines in Bengal.
3. All mines in the North-West Frontier Province.	3. Such mines in Bihar and Orissa as lie in the district of the Sonthal Parganas and in the district of Manbhum east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the district.
4. All mines in the Punjab.	4. All mines in Bombay.
5. All mines in Rajputana.	5. All mines in Burma.
	6. All mines in the Central Provinces.
	7. All mines in Madras.

**Statement No. 2.**

Names of persons to whom first and second class certificates to manage a coal mine were granted during the year 1922.

(a) Certificates granted to holders of English certificates of competency.

**FIRST CLASS.**

NAME.	No. of Indian certificate.	Date of Indian certificate.	No. of English certificate.	Date of English certificate.
Manley, Frederick William	280	18th April 1922	746	22nd January 1920.
Minto, Oswald	281	Ditto	753	Ditto.
Morgan, Arthur Mansel	282	Ditto	861	10th February 1921.
Heslington, Thomas Parker	283	4th May 1922	733	22nd January 1920.
Jones, Clifford	284	Ditto	973	11th May 1921.
Whyte, Maurice Melville	285	Ditto	934	12th February 1921.
Fairfield, Wilfrid	286	12th December 1922	796	11th August 1920.
Flanningan, Peter	287	Ditto	893	12th February 1921.
Hale, Bertram John	288	Ditto	947	Ditto.
Healy, John	289	Ditto	896	Ditto.
Mullin, George	290	Ditto	421	27th July 1917.
Radford, Simeon	291	Ditto	4171	28th June 1912.
Roy, Alexander Rose	292	Ditto	613	27th January 1919.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement No. 2—*contd.*

Names of persons to whom first and second class certificates to manage a coal mine were granted during the year 1922—*contd.*

(b) Certificates of competency.

## FIRST CLASS.

Name.	No. of certificate.	Date of certificate.	REMARKS.
Kolya, Narayan Chandra . . . . .	138	4th May 1922.	
Rawal, Girijashankar Shambhuram . . . . .	139	Ditto.	
Ganguly, Bijoy Kumar . . . . .	140	Ditto.	
Allan, Herbert Durham . . . . .	141	Ditto.	
Chatterjee, Hrishikesh . . . . .	142	Ditto.	
Habberjam, James . . . . .	143	Ditto.	
Wilson, Thomas . . . . .	144	Ditto.	
Chatterjee, Kshetra Mohon . . . . .	145	Ditto.	
Ghatak, Tara Sunkar . . . . .	146	Ditto.	
Banerjee, Jatindra Nath . . . . .	147	Ditto.	
Pandya, Pranjivan Hargovind . . . . .	148	Ditto.	
Ghani, Md. Osman . . . . .	149	Ditto.	
Chakravarty, Profulla Ranjan . . . . .	150	Ditto.	
Karmakar, Kali Pada . . . . .	151	Ditto.	
Jackson, Clarence Oliver . . . . .	152	Ditto.	
Mukerjee, Bhupendra Kumar . . . . .	153	Ditto.	
Menezes, Vincent de . . . . .	154	Ditto.	

(a) Certificates granted to holders of English certificates of competency.

## SECOND CLASS.

NAME.	No. of Indian certificate.	Date of Indian certificate.	No. of English certificate.	Date of English certificate.
Gittings, Harry . . . . .	25	12th December 1922.	7220	4th January 1910.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement No. 2—*concl.*

Names of persons to whom first and second class certificates to manage a coal mine were granted during the year 1922—*concl.*

(b) Certificates of competency.

## SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Walker, Clarence James . . . . .	267	4th May 1922.	
Laker, Stanley Alfred George . . . . .	268	Ditto.	
Biswas, Balaram . . . . .	269	Ditto.	
Chatterji, Kali Pada . . . . .	270	Ditto.	
Bose, Amulya Krishna . . . . .	271	Ditto.	
Chatterji, Anileswar . . . . .	272	Ditto.	
Shome, Makhan Lall . . . . .	273	Ditto.	
Joseph, Marcus Reginald Coleman . . . . .	274	Ditto.	
Basu, Rama Nath . . . . .	275	Ditto.	
Mitra, Jnanendra Nath . . . . .	276	Ditto.	
Roy Chowdhury, Himansu Kumar . . . . .	277	Ditto.	
Paul, Upendra Nath . . . . .	278	Ditto.	
Samanta, Dobi Kinkar . . . . .	279	Ditto.	
De, Probodh Chandra . . . . .	280	Ditto.	
Mukherji, Sakti Pada . . . . .	281	Ditto.	
Mukherjee, Tarapada . . . . .	282	Ditto.	
Roy, Rajeswar . . . . .	283	Ditto.	
Mukherjee, Kali Dass . . . . .	284	Ditto.	
Bhattacharjee, Kshitish Chandra . . . . .	285	Ditto.	
Chatterjee, Khirodo Chandra . . . . .	286	Ditto.	
Bhattacharji, Pusker Nath . . . . .	287	Ditto.	
Chakravarty, Hari Pada . . . . .	288	Ditto.	
Mukherji, Krishna Kinkar . . . . .	289	Ditto.	
Banerji, Baidya Nath . . . . .	290	Ditto.	
Sarkar, Pramatha Nath . . . . .	291	Ditto.	
Hazra, Probhakar . . . . .	292	Ditto.	
Das, Paresh Chandra . . . . .	293	Ditto.	
Sen Gupta, Nripendra Chandra . . . . .	294	Ditto.	
Sen Gupta, Mono Mohan . . . . .	295	Ditto.	
Chowdhury, Debendra Nath . . . . .	296	Ditto.	
Goswami, Jibananda . . . . .	297	Ditto.	
Sinha, Modhusudan . . . . .	298	Ditto.	
Sarkar, Radhika Ranjan . . . . .	299	Ditto.	
Durgaprasad, Gotipati Ramaswamy . . . . .	300	Ditto.	
Kundu, Shibpada . . . . .	301	Ditto.	
Mondal, Phanindra Nath . . . . .	302	Ditto.	
De, Abinash Chandra . . . . .	303	Ditto.	
Mitchell, Christopher Robert Stanley . . . . .	304	Ditto.	

**APPENDIX IV—contd.**  
**MISCELLANEOUS—contd.**

**Statement No. 3.**

**List of Universities and Colleges approved by the Governor-General in Council for the purposes of Rules 32 and 33 under the Indian Mines Act.**

Name of Institution and Degree or Diploma.	Date.
University of Birmingham in respect of its Degree of B. Sc. in Mining and Diploma in Mining.	11th June, 1904.
University College of Bristol in respect of its Senior Diploma in Mining.	16th September, 1904.
University of Cambridge in respect of its Diploma in Mining Engineering.	6th June, 1905.
University of Durham in respect of its Degree of B. Sc. in Mining	21st December, 1903.
Durham College of Science in respect of its Diploma in Mining	29th June, 1904.
University of Glasgow in respect of its Degree and Diploma in Mining.	28th September, 1904.
Glasgow and West of Scotland Technical College in respect of its Diploma in Mining.	28th June, 1904.
University of Leeds in respect of its Degree of B. Sc. in Mining and Diploma in Mining.	21st November, 1904.
University of London in respect of its B. Sc. Degree in Mining for Internal Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	9th June, 1905.
University of London in respect of its B. Sc. Degree in Mining for External Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	7th August, 1906.
Royal School of Mines in respect of its Associateship in Mining	24th March, 1904.
University of Oxford in respect of its Diploma B. for Colliery Engineers (in Scientific Engineering and Mining subjects).	11th February, 1905.
University College of Sheffield in respect of its Diploma in Mining	15th July, 1904.
University College of South Wales and Monmouthshire in respect of its Diploma in Mining.	19th April, 1904.
Wigan Mining and Technical College in respect of its Diploma in Mining.	26th August, 1904.
Bengal Engineering College, Sibpur, in respect of its Diploma in Mining.	22nd February, 1907.
Merchant Venturers' Technical College, Bristol, in respect of its Diploma in Mining Engineering.	5th October, 1905.
Victoria University of Manchester in respect of its Degree and Certificate of Mining.	14th February, 1906.
University College of Nottingham in respect of its Diploma in Mining Engineering.	28th March, 1906.
University of Sheffield in respect of its Degree of Bachelor of Engineering (Mining).	30th June, 1906.
Heriot-Watt College in respect of its certificate in Mining Engineering.	16th January, 1908.
Calcutta University in respect of its Degree of Bachelor of Engineering in the Branch of Mining Engineering.	24th September, 1910.
Harvard University, Cambridge, Massachusetts, in respect of its Diploma in Mining Engineering.	22nd February, 1913.
Columbia University, New York, in respect of its Degree of Engineer of Mines.	13th March, 1915.
California University, United States of America, in respect of its Degree of Mining Engineer.	19th February, 1916.
Pittsburg University, United States of America, in respect of its Degree of Engineer of Mines.	19th February, 1916.
Leland Stanford Junior University, California, in respect of its Degree of Bachelor of Arts, in Geology and Mining.	10th August, 1918.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*

## Statement No. 4.

## BENGAL ENGINEERING COLLEGE.

## THE MINING CLASSES.

*Admissions to the Mining Diploma Course at the Bengal Engineering College.*

The Diploma Course covers two Sessions, commencing yearly in April, and lasting till the examinations in the following March. (There is a vacation of about three months in August, September and October.) Six weeks of each Session is spent during November and December at a camp of mine surveying in the colliery districts.

Three classes of students are admitted—

*Occasional*—who are admitted to receive training in connection with private business.

*Regular*—who need have no experience of mining.

*Special*—who have had about two years' previous experience of coal-mining (underground).

A total of 4 seats yearly are reserved for candidates domiciled in Bihar and Orissa and 1 seat each for a candidate domiciled in Assam and Mysore.

Admissions are made as follows:—

*Regular and occasional students.*—Age may not exceed 20 on January 1st of the year of admission.

A.—Through a special preparatory course of one year's duration at the Bengal Engineering College. Admissions at the beginning of March.

B.—Through the Sub-Overseer classes (a two years' course at Dacca, Burdwan, Rajshahi and Pabna in Bengal; Bankipur in Bihar and Orissa).

*Special students*—

C.—Direct from the mines to the Mining Diploma classes without passing through either A or B. Admissions at the beginning of April. Applications must be made by 1st March accompanied by certificates from the colliery managers under whom candidates have served, showing the period and nature of employment underground.

*Admission qualifications to A, B and C*—

The passing of the B. Final or the Matriculation Examination in the 1st Division with additional mathematics, the Junior Cambridge Examination held at the end of the supplementary course for elementary European Schools, or equivalent.

The number that can be admitted is limited. The selection of candidates rests with the Principal who, all other things being equal, will prefer the younger of two candidates. So many superior candidates apply for admission that selection is now practically confined to those who have completed the I. Sc. S. or Senior Cambridge Course of Study.

*Scholarships awarded by the Bengal Government*—

*For Regular students*—

Scholarships of the following number and value are available for regular students admitted under A; these are awarded on the result of the examination held at the end of the Preparatory Course A:—

Two of Rs. 12 monthly.

Three of Rs. 6 monthly.

*Stipends awarded by the Bihar and Orissa Government*—

Two Boarding stipends of Rs. 15 monthly tenable for three years by poor and capable students of that Province. These are available in either the Mining or Mechanical and Electrical Engineering classes.

*For Special students*—Awarded by Bengal Government.

Awarded on the result of the examination held at the end of the lectures given in the colliery districts by the Instructor in Mining.

One of Rs. 50 for Europeans.

One or two of Rs. 25 for Indians.

These amounts should be sufficient to maintain a special student resident at the College. For further particulars apply for the Mining Classes Circular.

T. H. RICHARDSON,  
Principal, Bengal Engineering College,  
Botanic Garden P. O.



## APPENDIX IV—contd.

## MISCELLANEOUS—contd.

## Statement No. 5.

## MINING INSTRUCTION IN BENGAL.

[The Mining Education Advisory Board desire that Colliery Managers will kindly publish this information in their collieries. An appeal is also made to them to support the lectures by seeing that members of their colliery staff, who are suitable, take advantage of the lectures and attend them regularly.]

The full course comprises two parts, the lectures in which are delivered in alternate years as follows :—

- (1) The principles of Coal Mining, 1922-23.
- (2) The principles of Mechanical Engineering of Coal Mines, 1923-24.

A fee of Rs. 5 (five rupees) payable to the Mining Instructor on the first registration of his name is charged to each student for each year's series of lectures. This fee is non-returnable.

## Programme for Session, 1922-23.

Lectures on the principles of Coal Mining will be delivered in English, as follows :—

## RANIGANJ COAL-FIELD.

Dishergarh . . . .	Lecture-room near Club . . . .	Wednesdays	5-30 P.M.
Raniganj . . . .	Bengal Coal Co. Ltd., zamindari office . . . .	Thursdays	5-0 ..
Jamuria . . . .	Chief Mining Engineer's office, Sibpur Colliery . . . .	Fridays	5-30 ..

The course of instruction, consisting of not less than 30 lectures, will commence in the first week in September and end in the following April. The examination will be held early in May. Candidates who pass the examination will receive a certificate recording their success. No candidate will, however, be permitted to sit for the examination unless he has attended 50 per cent. of the lectures and received 40 per cent. of the marks allotted for home work.

Scholarships are awarded by the Mining Education Advisory Board on the results of the examination ; these will be tenable for two years at the Sibpur College, and are granted to enable the holders to attend the full course for the Diploma in the Principles of Mining. One scholarship of Rs. 50 is reserved for Europeans and two of Rs. 25 are awarded to Indians. Candidates are not eligible for scholarships unless they have two full years of practical training in the collieries. Preference will be given to those who have satisfied the examiners in both of the lecture courses in the coal-fields.

The following Local Committees have been appointed :—

## RANIGANJ COAL-FIELD.

<i>Dishergarh Centre.</i>		
Mr. J. H. Lang, Chairman.		
„ J. B. Wardlaw (Dishergarh).		
„ Geo. Miller (Sitarampur).		
„ W. Weir (Kulti).		
Babu U. N. Mandal (Dishergarh).		
„ K. B. Chandra (Mugma).		
„ S. N. Ghosh (Barakar).		
<i>Jamuria Centre.</i>		
Mr. J. H. Lang, Chairman.		
„ P. S. Keelan (Charanpur).		
„ G. S. Castles (Charanpur).		
„ D. N. Archibald (Sripur).		
„ W. S. Elphinstone (Asansol).		
Babu S. N. Banerjee (Faridpur Colliery, Charanpur P.O.)		
<i>Raniganj Centre.</i>		
Mr. J. H. Lang, Chairman.		
„ P. S. Keelan (Charanpur).		
„ A. T. Creet (Kalipahari).		
„ W. J. Rees (Raniganj).		
Babu Promotho Nath Hazra (Toposi).		
„ Purna Chandra Bagchi (Kalipahari).		
„ S. Chaudhuri (Jamehari, Raniganj).		

T. H. RICHARDSON,

Secretary, Mining Education Advisory Board,

B. E. College, Botanic Garden P. O.,

Howrah,

**APPENDIX IV—contd.**  
**MISCELLANEOUS—contd.**

**Statement No. 5—contd.**

**MINING INSTRUCTION IN THE COAL-FIELDS OF BENGAL.**

**SYLLABUS OF THE COURSE OF INSTRUCTION.**

The lectures in the following courses are delivered in alternate years:—

**THE PRINCIPLES OF COAL MINING.**

1. *Geology*.—General structure of the earth's crust; igneous and aqueous rocks; definitions of outcrop, dip, strike, fault, roll, wash-out and dyke, etc.; recording geological observations; reading a geological map; description of the Indian coal-bearing rocks; composition and properties of coal. Commercial values of coal.
2. *Exploration*.—Prospecting, trial shafts and trenching; advantages of boring; methods of boring; driving through faults, uses of boreholes in mines, etc.
3. *Breaking ground*.—Common tools; storage and use of explosives; electric fuses; machine drills; coal-cutting machines.
4. *Sinking*.—Site of colliery; position of inclines and shafts, their excavation and shape, apparatus used in sinking; lining shafts; arrangements at top of sinking shaft; brief mention of special methods of sinking.
5. *Methods of working*.—Quarrying, advantages of bench work, disposal of soil; shaft pillars; pillar and gallery method, working thick seams in stages, extraction of pillars, panels; brief description of long wall and chambering methods.
6. *Supporting*.—Props and lids, bars, chocks or cogs, square sets, special timbering in loose ground; arching; steel girders; packing; dry and hydraulic stowing.
7. *Mine gases*.—Their experimental preparation by chemicals, and illustration of their physical and physiological properties; their chemical composition; methods of detecting explosions; spontaneous combustion of coal; dangers of coal-dust.
8. *Ventilation*.—Ascensional currents, currents induced by the heat of steam or furnace; mine fans; friction of air in mines; theory of splitting the air; calculations of ventilating pressure, etc.; coursing the air; measurement of quantity of air; use of anemometer, water-gauge, thermometer and barometer, reversing the air current.
9. *Safety lamps*.—Principle of the safety lamps; Sir Humphrey Davys' experimental types of safety lamps; firedamp detectors.

**THE PRINCIPLES OF MECHANICAL ENGINEERING OF COAL MINES.**

1. *Applied Mechanics*.—Mensuration; definitions of motion, force, friction, work and energy; the simple machines; mechanical and electrical units; hydrostatics; the siphon; pressure of gases; Boyle's law.
2. *Steam, Electricity and Compressed air*.—Theory of steam boilers and their fittings; the steam engine; the dynamo; the electric motor; the air compressor.
3. *Winding*.—Types of winding engines and description of parts; calculation of the dimensions of winding engines; strength of ropes and chains; detaching hooks; over-winding prevention devices; rope cappings; care and examination of ropes, buckets, cages, guide ropes.
4. *Pumping*.—The lift pump; the force pump; sinking pumps; pumps with positive valve motion; the pulsometer; turbine pumps; calculations of the dimensions of pumps; methods of supporting pumps and pipes; strength of pipes, pipe joints; dams to hold back water.
5. *Hauling*.—Tramways; tubs; hand tramming; horse haulage; self-acting inclines; locomotives; single rope haulage; main and tail rope haulage; endless rope or chain haulage; calculations of the dimensions of hauling engines, ropes, etc.; capping of haulage ropes; couplings, haulage clips, etc.; signalling.
6. *Surface arrangements*.—Headframes and pulleys; receiving frames; keps; arrangements of roads on pit bank; tipplers; simple screening and sizing; railway sidings; aerial ropeways.
7. Simple treatment of coking and bye-product ovens.

Adopted by the Mining Education Advisory Board at their meeting of 27th January 1917.  
Copies of this Circular may be obtained from the Secretary or from the Instructor.

T. H. RICHARDSON,  
*Secretary.*

BENGAL ENGINEERING COLLEGE,  
BOTANIC GARDEN P. O.  
The 16th October 1922.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*

## Statement No. 6.

## MINING INSTRUCTION IN BIHAR AND ORISSA.

(The Mining Education Advisory Board desire that Colliery Managers will kindly publish this information in their collieries. An appeal is also made to them to support the lectures by seeing that members of their colliery staff, who are suitable, take advantage of the lectures and attend them regularly.)

The full course covers a period of three years and the following is an abstract of the syllabus.

*First year.*—(1) Mathematics, (2) Elementary Science.

*Second year.*—(1) Elementary Mechanics, (2) Mechanical Drawing.

*Third year* { (1) Elementary Mining Surveying.  
(2) The Principles of Coal Mining.  
(3) Mechanical and Electrical Engineering of Collieries.

Copies of the detailed syllabus may be obtained from the Secretary, the Chairman of the Local Committees and Lecturer.

A fee of Rs. 5 (five rupees) is payable by each student to the Mining Lecturer on the first registration of his name for the first or the second year's course of lectures. The fee for the third year's course is Rs. 10. These fees are not returnable.

*Programme for Session, 1922-23.*

During Session 1922-23 instruction in all the years of the course will be provided. There will be two lectures per week in the first and the second years and three lectures per week in the third year.

*Lecturer.*

Mr. Griffith Jones, B.Sc., first class certificated Colliery Manager and Surveyor.

*Assistant Lecturer.*

N. N. Sen, L.M.E.

All students should enrol as follows:—

*Jharia Lecture Hall* . . . . . Monday, September 4, at 5-30 P.M.  
*Sijua Lecture Hall* . . . . . Tuesday, September 5, at 5-30 P.M.

The class arrangements for all the courses will be arranged by the lecturer on the enrolling nights. Students should enrol at the first meeting so that the class work may be commenced without delay.

The course of instruction will commence in the first week in September and end in the following May. The examination will be held in May. Candidates who pass the final examination will receive a certificate recording their success. No certificate shall be given to candidates unless they attend the 2nd and 3rd years. No candidate will, however, be permitted to sit for the examination unless he has attended 50 per cent. of the lectures and received 40 per cent. of the marks allotted for home work.

The following Local Committees have been appointed:—

## JHARIA COALFIELD.

Jharia Centre.	Sijua Centre.
Mr. D. Penman, Chairman.	Mr. D. Penman, Chairman.
„ G. Jones, Lecturer.	„ G. Jones, Lecturer.
„ R. G. M. Bathgate (Jamadoba).	„ A. A. Agabeg (Sijua).
„ J. Murray (Kustore).	„ R. Heron (Bhalgora, Jharia P.O.).
„ J. R. Argyle (Lodna).	„ H. M. Bull (Bansjora).
„ R. Barrowman (Standard Coal Company, Jharia).	„ G. C. Leach (Sijua P. O.)
„ Narendra Nath Sarkar (South Kujama, Jharia).	Babu Trikundas Doyal (Bullihari Colliery, Kusunda P.O.)
„ S. M. Chatterjee (Kalithan Suratand, Jharia).	Mr. Meghji Bhimji Relia (Angrapattra).

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement No. 6—*contd.*

## MINING INSTRUCTION IN THE COALFIELDS OF BIHAR AND ORISSA.

## SYLLABUS OF THE COURSE OF INSTRUCTION.

*First Year Course.*

1. *Mathematics*.—Arithmetic and Algebra up to simple equations. Mensuration and use of squared paper. Trigonometry—up to solution of Triangles.

2. *Elementary Science—Physics*.—Volume of displacement, Balances, Density, Specific gravity bottle, Fluid pressure, Hydrometer, Syphon, Barometer, Ideas of forces, Equilibrium of three forces, Centres of gravity, Fraction, Thermometer, Expansion due to heat, Latent heat of steam, Properties of solids, Liquids and gases, Boyle's Law, Hydrostatics, Elements of electricity and Magnetism, Electrical units.

*Chemistry*.—Atomic Theory, Elements, Compounds, mixtures, acids, bases, composition of the atmosphere and of gases met with in Mines.

*Second Year Course.*

1. *Mechanics*.—Units of Mass, Length and time, Levers, Pulleys, Wedges, Gearing, Simple Machines, Equilibrium, Units of work and energy, Horse Power, Stress and Strain, Design and headgears, Strength of ropes, chains, boilers, etc. The elementary principles of hydraulics.

2. *Mechanical Drawing*.—Conventional signs, Construction of Scales, Nuts, Bolts, Screw threads, Simple parts of machines, Engines and Pumps. The elementary principles of geometry.

*Third Year Course.*

1. *Mining Surveying*.—Use of pens, Scales and protectors, Surveying by means of the chain only. The Miners dial, Loose needle surveying, Fixed needle surveying, Levelling, Field books, Contouring. The use of the Plane Table. The Theodolite and its uses, Plotting by co-ordinates. Setting out and alignment. The adjustment of instruments.

2. *The Principles of Coal Mining*—(1) *Geology*.—General structure of the earth's crust, igneous and aqueous rocks; definitions of outcrop, dip, strike, fault, roll, wash-out and dyke, etc., recording geological observations reading a geological map, description of the Indian coal-bearing rocks, composition and properties of coal, commercial values of coal.

(2) *Exploration*.—Prospecting, trial shafts and trenching, advantages of boring, methods of boring, driving through faults, uses of boreholes in mines, etc.

(3) *Breaking ground*.—Common tools, storage and use of explosives, electric fuses, machine drills, coal-cutting machines.

(4) *Sinking*.—Site of colliery, position of inclines and shafts, their excavation and shapes, apparatus used in sinking, lining shafts, arrangements at top of sinking shaft, brief mention of special methods of sinking.

(5) *Methods of working*.—Quarrying, advantages of bench work, disposal of soil, shaft pillars, pillar and gallery method, working thick seams in stages, extraction of pillars, panel, brief description of long wall and chambering methods.

(6) *Supporting*.—Props and lids, bars, chocks or cogs, square sets, special timbering in loose ground, arching, steel girders, packing, dry and hydraulic stowing.

(7) *Mine gases*.—Their experimental preparation by chemicals and illustration of their physical and physiological properties, their chemical composition, methods of detecting, explosions, spontaneous combustion of coal, dangers of coal-dust.

(8) *Ventilation*.—Ascensional currents, currents induced by the heat of steam or furnace, mine fans, friction of air in mines, theory of splitting the air, calculations of ventilating pressure, etc., coursing the air measurement of quantity of air, use of anemometer, water-gauge, thermometer and barometer, reserving the air current.

(9) *Safety lamps*.—Principle of the safety lamps, Sir Humphrey Davys' experimental types of safety lamps, firedamp detectors.

3. *The Principles of Mechanical and Electrical Engineering of Coal Mines*—(1) *Applied Mechanics*.—The practical application of the principles taught in the 1st and 2nd years.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement No. 6—*concl.*

(2) *Steam, electricity and compressed air.*—Theory of steam boilers and their fittings, the steam engine, the dynamo, the electric motor, electric lighting and airing, the air compressor.

(3) *Winding.*—Types of winding engines and description of parts, calculation of the dimensions of winding engines, strength of ropes and chains, detaching hooks, over-winding prevention devices, rope cappings, care and examination of ropes, buckets, cages, guide ropes.

(4) *Pumping.*—The lift pump, the force pump, sinking pumps, pumps with positive valve motion, the pulsometer, turbine pumps, calculations of the dimensions of pumps, methods of supporting pumps and pipes, strength of pipes, pipe joints, dams to hold back water.

(5) *Hauling.*—Tramways, tubs, hand tramming, horse haulage, self-acting inclines, locomotives, single rope haulage, main and tail rope haulage, endless rope or chain haulage, calculations of the dimensions of hauling engines, ropes, etc., capping of haulage ropes, couplings, haulage clips, etc., signalling.

(6) *Surface arrangements.*—Headframes and pulleys, receiving frames, keps, arrangements of roads on pit bank, tippers, simple screening and sizing, railway sidings, aerial ropeways.

(7) Simple treatment of coking and bye-product ovens.

DEPARTMENT OF MINES, DHANBAD :

*The 1st August, 1922.*

D. PENMAN,

*Assistant Secretary,*

*Mining Education Advisory Board,*

## Statement No. 7.

## DEPARTMENT OF MINES IN INDIA.

*Regulations made by the Board of Examiners under Rule 30 of the rules applying to coal-mines made under Section 20 of the Indian Mines Act, 1901, for the conduct of examinations for Colliery Managers' Certificates of competency.*

(1) No member of the Board of Examiners shall act as a local examiner, except in emergent cases.

(2) When possible one or more members of the Board of Examiners shall attend every examination on at least one of the days.

(3) So far as is practicable, the local examiners for each examination shall be :—

(a) An Inspector of Mines, who shall be Secretary to the local examiners.

(b) Two Mining Engineers or Colliery Managers who must be the holders of first class certificates. Provided that a Mining Professor may be appointed instead of one of the Mining Engineers or Managers.

(4) The remuneration of each local non-official examiner shall be Rs. 150 for each examination, and a capitation fee of Rs. 2 for each first class candidate and Re. 1 for each second class candidate examined, and travelling expenses and halting allowances on the first class scale under the Civil Service Regulations ; but an Inspector of Mines, acting as a local examiner, shall not be entitled to any fee or remuneration whatsoever, beyond the travelling expenses and halting allowances due to him in his official capacity.

(5) The examinations will be advertised at least four months before the dates of the examinations, and applications, which must be on the prescribed form and supported by original certificates as to experience and character, and accompanied by fees, will be received up to a date, duly advertised, not less than one month prior to the examinations. No application which is not in the prescribed form, or which is not supported by the certificates and fees referred to above, or which is not submitted in due time, will be considered by the Board.

(6) The subjects for examination shall be :—

(a) *Geology and Mining.*—The geological features of the Coalfields of India, and the application of geology to coal mining. Boring, Sinking. Methods of laying out and working. Supporting roof and sides. The use of explosives. Dams.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement No. 7—*contd.*

- (b) *Ventilation, Explosions, Underground fires and inundations.*—Natural ventilation. Fans and other means of ventilation. The distribution, measurement and control of air in mines. Mine gases. The construction, use and testing of safety lamps. Spontaneous heating. Coal dust. Recovery of mines after explosions, fires and inundations.
- (c) *Machinery.*—Strength of materials. Steam. Compressed air. Electricity. Winding. Hauling. Pumping. Transmission of power. Mechanical coal-cutting and drilling.
- (d) *Surveying, Levelling and Mensuration.*—Magnetic declination. Loose and fast needle surveying. The theodolite. Contour lines and levelling. Calculations and triangulation. Connecting of surface and underground surveys. Mine plans. Instruments.
- (e) *Management and Mining Legislation.*—Organization. Indian Mines Act and Rules under the Act. Other legislation applicable to mines. Sanitation.

(7) The examination shall be both written and oral and the subjects and conditions shall be the same for candidates for both classes of certificates ; but the examination questions shall be made suitable for each class of certificate.

The examiners shall have power to eliminate the oral examination in the case of candidates who do not reach a standard in the written examination to be prescribed by the Board of Examiners.

(8) The following shall be the maximum number of marks given for each subject :—

Subject.	FIRST CLASS.			SECOND CLASS.		
	Papers.	Viva voce.	Total.	Papers.	Viva voce.	Total.
1	2	3	4	5	6	7
Geology and Mining . . . . .	110	30	140	100	40	140
Ventilation, Explosions, Underground fires and inundations.	75	25	100	70	30	100
Machinery . . . . .	90	30	120	80	40	120
Surveying, Levelling and Mensuration . . . . .	50	10	60	45	15	60
Management and Mining Legislation . . . . .	60	20	80	50	30	80
<b>TOTAL</b> . . . . .	<b>385</b>	<b>115</b>	<b>500</b>	<b>345</b>	<b>155</b>	<b>500</b>

(9) A candidate for a certificate of competency must qualify in each of the subjects for examination, and must obtain 40 per cent. of the maximum marks obtainable for each paper, 40 per cent. of the maximum marks for the oral examination and 60 per cent. on the whole examination (written and oral) to qualify.

(10) A candidate for a first class certificate, who does not reach the necessary standard, may, nevertheless, at the discretion of the local examiners, be recommended to the Board of Examiners for a second class certificate, if, in their opinion, he has done sufficiently well to deserve it.

(11) The Secretary to the local examiners shall submit a report of the result of the examination giving the number of marks obtained by each candidate in each subject, to the President of the Board of Examiners within one month of the close of the examination.

(12) The questions to be set at the examinations shall be prepared by the Board of Examiners which may, at its discretion, confer with the local examiners.

(13) At least one examination for first class candidates and at least one examination for second class candidates shall be held annually in one of the Bengal or Bihar and Orissa coal-fields ; and in other parts of India examinations will be held whenever, in the opinion of the Board of Examiners, the number of candidates in a coal mining centre justifies the holding of an examination.

**APPENDIX IV—contd.**  
**MISCELLANEOUS—contd.**

**Statement No. 7—concl'd.**

(14) No candidate will be allowed to take part in the examination until he has produced an authorization from the Board of Examiners.

(15) Every candidate must sign a register, in which he will be given a definite number. He must sign his name and write his registered number at the top of every page of the paper on which he writes the answers to the questions.

(16) The number of the question must be given in bold figures before the answer to each question.

(17) The calculations and work by which a result is obtained must be clearly shown in immediate connection with the answer to each question.

(18) Answers must be strictly confined to the questions asked.

(19) Sketches may be made to make answers clear.

(20) When sketches are asked for, it should be understood that, unless otherwise stated, freehand sketches, with dimensions, are all that is necessary, and candidates should not spend time in making finished drawings.

(21) Any candidate speaking to any other candidate during the examination, or using any book, notes or private paper, or acting in any manner which the examiners consider improper will be liable to be disqualified at their discretion. The Board of Examiners may in such a case use their discretion as to allowing the candidate to sit at any future examination.

(22) When a candidate has completed the answers to the questions, or when the time allowed for answering the questions has elapsed, or he has been disqualified, he must hand the paper of questions and his answers to the examiners, and at once leave the examination room.

(23) A time-table will be supplied to each candidate at the commencement of the first day's examination.

(24) The oral examination will be held at a subsequent date. Only those candidates who obtain a certain degree of proficiency in the written examination will be examined orally. Due notice of time and place will be sent to each candidate required by the examiners for oral examination.

(25) The number of marks given for each question will be shown in brackets at the end of the question.

(26) Ink and paper will be provided, and no paper other than the official paper provided may be used. Candidates must bring their own pens and pencils, drawing pens and drawing instruments, including a protractor.

These regulations cancel all previous regulations and shall take effect from the 1st January 1923.

R. R. SIMPSON,

*Chief Inspector of Mines in India*

*and ex-officio President of the Board of Examiners.*

DHANBAD,

*The 10th June, 1922.*

APPENDIX IV—*contd.*Miscellaneous—*contd.*

Statement No. 8.

## DEPARTMENT OF INDUSTRIES.

## NOTIFICATION.

*Simla, the 29th June, 1922.*

**No. M.-498.**—In exercise of the powers conferred by section 20 of the Indian Mines Act, 1901 (VIII of 1901), the Governor General in Council is pleased to make the following amendments in the rules published with the notification of the Government of India in the Department of Commerce and Industry, No. 11793-103, dated the 30th December 1908.

1. For rule 1 of the said rules the following shall be substituted, namely :—

- “(1) On or before the tenth day of every month, the owner, agent or manager of every coal mine shall send to the Chief Inspector of Mines a correct return for the preceding calendar month in Form I in the Schedule to these rules.
- (2) The owner, agent or manager of every mine shall submit annual returns in Forms II, III, IV and V as prescribed in the Schedule to these rules. In addition to these returns, the owner, agent or manager shall submit returns, in the case of a coal mine in Forms VI, VII and VIII, in the case of a mica mine in Forms IX and X, and in the case of any other mine in Forms VI, IX and XI in the Schedule to these rules.
- (3) The returns prescribed by sub-rule (2) shall be made out in duplicate and before the twenty-first day of January in the year following that to which they refer the owner, agent or manager shall forward one copy to the Chief Inspector of Mines and the other to the District Magistrate.
- (4) If the owner of any mine abandons the mine or discontinues the working of the mine for more than three months or if a change of ownership occurs, the returns required by sub-rule (2) shall be submitted by the owner or the former owner, as the case may be, within one month from the date of abandonment or change of ownership or within three months from the date of discontinuance :

Provided that by order in writing the Chief Inspector of Mines may extend the period for the submission of such returns up to any date not later than the twenty-first day of January in the year following that to which they refer.

Provided further that nothing in this sub-rule shall be interpreted as authorising the submission of any return later than the twenty-first day of January in the year following that to which it refers.”

2. In rule 8 of the said rules, for the words and figures “ Form VII in the Schedule hereto annexed ” the words and figures “ Form XII in the Schedule to these rules ” shall be substituted, and after the word “ explosion ” the words “ or ignition ” shall be inserted.

3. For the Schedule to the said rules, the following shall be substituted, namely :—

## THE SCHEDULE.

## FORM I.

(FOR COAL MINES ONLY.)

*Monthly return of coal raisings and coal despatches for the month* 19 .

1. Name of mine \_\_\_\_\_
2. Name of owner \_\_\_\_\_
3. Postal address of owner \_\_\_\_\_
4. Raisings of coal of all kinds (including colliery consumption and coal used for coke making). Tons \_\_\_\_\_
5. Despatches of coal. Tons \_\_\_\_\_
6. Signature of owner, agent or manager \_\_\_\_\_

Dated \_\_\_\_\_

[NOTE.—Under Section 22 (2) (b) of the Indian Mines Act, failure to forward a correct return to the Chief Inspector of Mines by the prescribed date will render the agent, owner or manager liable, on conviction, to a penalty which may extend to Rs. 500.]



APPENDIX IV—*contd.*Miscellaneous—*contd.*Statement No. 8—*contd.*

## FORM II.

(FOR ALL MINES.)

*Annual return for the year ending on the 31st December 19 .*

1. Name of mine \_\_\_\_\_
2. Postal address of mine \_\_\_\_\_
3. Date of opening \_\_\_\_\_
4. Date of closing (if closed) \_\_\_\_\_
5. Situation of mine { District \_\_\_\_\_  
Province \_\_\_\_\_
6. { Name of owner \_\_\_\_\_  
Postal address of owner \_\_\_\_\_
7. { Name of Managing Agents (if any) \_\_\_\_\_  
Postal address of Managing Agents (if any) \_\_\_\_\_
8. { Name of Agent (if any), as defined in Section 3 (a) of the Indian Mines Act \_\_\_\_\_  
Postal address of Agent \_\_\_\_\_
9. { Name of Manager \_\_\_\_\_  
Postal address of Manager \_\_\_\_\_
10. Name of mineral worked \_\_\_\_\_
11. Means by which the mineral is raised from the mine, *i.e.*, hand labour, mechanical or electrical power \_\_\_\_\_

[NOTE.—Under Section 22 (2) (f) of the Indian Mines Act, failure to forward a correct return to the Chief Inspector of Mines by the prescribed date will render the agent, owner or manager liable, on conviction, to a penalty which may extend to Rs. 500.]

APPENDIX IV—*contd.*

Miscellaneous—*contd.*

Statement No. 8—*contd.*

FORM III.

(FOR ALL MINES.)

Persons employed during the year ending on the 31st December 192 .

			DAILY AVERAGE NUMBER OF PERSONS EMPLOYED AS CALCULATED BY DIVIDING THE AGGREGATE NUMBER OF ATTENDANCES BY THE NUMBER OF DAYS WORKED.										
			In the workings of the mine.				On surface and not in the workings of the mine, including all subordinate officials and persons employed on sidings, loading wharves, private railways and surface tramways and also in carting.						
Class of labour.	Aggregate number of daily attendance during the year of persons permanently and temporarily employed.	Number of days worked.	Males over 12 years of age.	Females over 12 years of age.	Children under 12 years of age.	TOTAL.	Males over 12 years of age.	Females over 12 years of age.	Children under 12 years of age.	TOTAL.	Gross total obtained by adding totals in columns 7 and 11. This should equal the number obtained by dividing the number in column 2 by the number in column 3.		
			4	5	6	7	8	9	10	11	12		
1	2	3	4	5	6	7	8	9	10	11	12		
Miners . . . . .													
* Other persons employed . . . . .													
TOTAL . . . . .													

\* Excluding the superior supervising staff

APPENDIX IV—contd.

Miscellaneous—contd.

Statement No. 8—contd.

FORM III—contd.

HOURS AND WAGES.

Class of labour.	Average number of hours worked per week per person.	Average weekly earnings per person.
Miners . . . . .		
Other persons employed underground . . . . .	{ Males . Females .	
Other persons employed on surface . . . . .	{ Males . Females .	

NOTE.—Where wages are paid monthly, it is permissible to enter figures for the month, but the fact that they are such should be clearly stated.

**APPENDIX IV—contd.**

**Miscellaneous—contd.**

**Statement No. 8—contd.**

**FORM IV.**

(FOR ALL MINES.)

**Accidents and Prosecutions.**

NUMBER OF SEPARATE ACCIDENTS* REPORTED DURING THE YEAR.			NUMBER OF PERSONS.		Number of prosecutions instituted by the management, with the sections and rules under which the prosecutions were instituted.	Number of persons convicted, with the sections and rules under which the convictions were obtained.
Fatal.	Serious.	TOTAL.	Killed.	Seriously injured.		
1	2	3	4	5	6	7

\* Accidents, which were reported as serious accidents but resulted fatally, should be entered as fatal accidents.

APPENDIX IV—contd.

Miscellaneous—contd.

Statement no. 8—contd.

FORM V.

(FOR ALL MINES.)

*Epidemic Diseases.*

Name of disease.*	Date of appearance.	Date of disappearance.	Number of cases.	Number of deaths.
Cholera . . . . .				
Plague . . . . .				
Small-pox . . . . .				
Influenza . . . . .				

\* Figures for any other specified disease which has been epidemic at the mine should be entered in this form.

**APPENDIX IV—contd.**

**Miscellaneous—contd.**

**Statement no. 8—contd.**

**FORM VI.**

(FOR ALL MINES EXCEPT MICA MINES.)

*Type and aggregate horse-power of electrical apparatus.*

<b>1.—System of supply (whether continuous current or alternating current)—</b>	
Voltage of supply . . . . .	
Periodicity . . . . .	
Source of supply . . . . .	
<b>2.—Voltage at which current is used for—</b>	
Lighting . . . . .	
Power . . . . .	
<b>3.—Aggregate horse-power of motors installed on surface for—</b>	
Winding . . . . .	
Ventilation . . . . .	
Haulage . . . . .	
Coal washing or screening . . . . .	
* Ore dressing . . . . .	
Miscellaneous . . . . .	
	<b>Total horse-power . . . . .</b>
<b>4.—Aggregate horse-power of motors installed below ground for—</b>	
Haulage . . . . .	
Pumping . . . . .	
Portable machinery . . . . .	
Miscellaneous . . . . .	
	<b>Total horse-power . . . . .</b>
<b>5.—Total horse-power (addition of 3 and 4) . . . . .</b>	

\* In the case of a mine, other than a coal mine.

**APPENDIX IV—contd.**

**Miscellaneous—contd.**

Statement no. 8—contd.

**FORM VII.**

(FOR COAL MINES ONLY.)

*Explosives, safety lamps, mechanical ventilators, and coal-cutting machines.*

EXPLOSIVES.			SAFETY LAMPS.			MECHANICAL VENTILATORS.			COAL-CUTTING MACHINES.				
Name of explosive.	Quantity used in lb.	Number of detonators used.	Name of safety lamps.	No. of safety lamps and method of locking.			Name of mechanical ventilator.	Average total quantity of air produced per minute.	Water gauge obtained.	Name and type.	Power used, i.e., electricity or compressed air.	Number in use.	Total No. of square feet cut.
				Screw.	Lead rivet.	Magnetic.							

APPENDIX IV—contd.

Miscellaneous—contd.

Statement no. 8—contd.

FORM VIII.

(FOR COAL MINES ONLY.)

Output for year ending on the 31st December 19 .

	Opening stocks on 1st January 19 .	Raisings (including colliery consumption and coal used for coke making).	Total of columns 2 and 3.	Total value of raisings (" Value " means, and should be calculated upon actual or esti- mated selling price into wagons at the mine).	Despatches.	Colliery consump- tion (exclusive of coal used for coke making).	Coal deli- vered for coking on colliery.	Closing stocks on 31st December 19 .	Total of columns 6, 7, 8 and 9.
1	2	3	4	5	6	7	8	9	10
	Tons.	Tons.	Tons.	Rs.	Tons.	Tons.	Tons.	Tons.	Tons.
Coal, including rubble, slack and dust.									

Coal despatched to coke factories . . . . . Tons.

NOTE.—The total in column 4 must be the same as the total in column 10.  
The figures should be in tons and rupees, omitting cwt. and annas.



APPENDIX IV—*contd.*

Miscellaneous—*contd.*

Statement no. 8—*contd.*

FORM VIII—*contd.*

	Opening stocks.	Coke made.	Total of columns 1 and 2.	Coke despatched.	Closing stocks.	Total of columns 4 and 5.	Total value of coke made. ("Value" means, and should be calculated upon, actual or estimated selling price into wagons at the mine.)
	1	2	3	4	5	6	7
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.

NOTE.—The total in column 3 must be the same as the total in column 6.

The figures should be in tons and rupees omitting cwt. and annas.

Signature of Owner, Agent or Manager \_\_\_\_\_

(If the form is signed by the Managing Agents, the word "for owner" should be added.)

Date of signature \_\_\_\_\_

**APPENDIX IV—contd.**

**Miscellaneous—contd.**

**Statement no. 8—contd.**

**FORM IX.**

(FOR ALL MINES EXCEPT COAL MINES.)

*Particulars of Explosives.*

EXPLOSIVES.		
Name of explosives.	Quantity used in lb	Number of detonators used.

APPENDIX IV—contd.

Miscellaneous—contd.

Statement no. 8—contd.

FORM X.

(FOR MICA MINES ONLY.)

Output for year ending on the 31st December 19 .

Total amount of dressed Mica raised.	Total amount of dressed mica consigned.	Total value at the mine of mica consigned. ("Value" means, and should be calculated upon, actual or estimated selling price at the mine. Any charges incurred in transporting the mica outside the mine should not be included.)
1	2	3
Cwt. . . . . Lb. . . . .	Cwt. . . . . Lb. . . . .	

111

Signature of Owner, Agent or Manager \_\_\_\_\_  
 (If the form is signed by Managing Agents, the words "for owners" should be added.)

Date of signature \_\_\_\_\_

**APPENDIX IV—contd.**

**Miscellaneous—contd.**

Statement no. 8—contd.

**FORM XI.**

(FOR ALL MINES EXCEPT COAL AND MICA MINES.)

*Output for year ending on the 31st December 19*

Name of mineral raised, and metal (if any) extracted.	Total amount of mineral raised. The figures should be stated :— (a) in the case of gem-stones in carats ; (b) in the case of alum, amber, asbestos, graphite, jadestone, steatite, tin-ore, tungsten-ore, in cwt., or where the circumstances require greater particularisation in order to give an accurate estimate of small outputs, in cwt. and lb. Output of radio-active minerals and rare minerals such as molybdenite, monazite, pitchblende, samarskite, tantalite, triplite, should be returned in cwt. and lb ; (c) in the case of clay, limestone, magnesite, marble, phosphatic-rock, salt, slate and other stone, and all metaliferous ores except those referred to in (b), in tons.	Total value at the mine of mineral raised. (" Value " means, and should be calculated upon, actual or estimated selling price at the mine. Any charges incurred in transporting the mineral outside the mine property should not be included.)	Quantity of metal or metals extracted at the mine. Each metal should be shown separately :— (2) in the case of gold, silver and other precious metals in Troy ounces ; (b) in the case of tin, in cwt., and fractions of cwt. ; (c) in the case of other metals in tons and fractions of tons.	Value of metal or metals extracted at the mine. The value of each metal should be shown separately.
1	2	3	4	5
<b>TOTAL</b>				

Signature of Owner, Agent or Manager \_\_\_\_\_

(If the form is signed by Managing Agents, the words " for owners " should be added.)

Date of signature \_\_\_\_\_

APPENDIX IV—*contd.*Miscellaneous—*contd.*Statement no. 8—*contd.*

## FORM XII.

(FOR ALL MINES.)

## Notice of Accident.

From—

To—The Chief Inspector of Mines, through the <sup>District</sup> Sub-divisional Magistrate of

Dated 19 .

SIR,

I have the honour to furnish the following particulars of a <sup>fatal</sup> <sup>serious</sup> <sup>accident</sup> an accidental explosion or ignition which has occurred at the Mine:—

1. Situation of the mine. (Village, Station, District, Province.)			
2. Mineral worked . . . . .			
3. Name and postal address of owner . . . . .			
4. Name and sex of persons—			
Killed.	Injured.	Ago.	Occupation.
5. Date and hour of accident . . . . .			
6. Place of accident . . . . .			
7. Cause and description . . . . .			
8. Classification of accident * . . . . .			
9. Nature of injury, and if fatal cause of death . . . . .			

I have the honour to be,

SIR,

Your most obedient servant,

Owner.

Agent.

Manager.

\* Under one or other of the following heads, namely:—

- (1) Explosions and ignitions of fire damp; (2) falls of roof; (3) falls of side; (4) in shafts (overwinding); (5) in shafts (ropes and chains breaking); (6) in shafts (while ascending or descending by machinery); (7) in shafts (falling into the shafts from the surface); (8) in shafts (falling from part of the way down); (9) in shafts (things falling from the surface); (10) in shafts (things falling from part of the way down); (11) in shafts (miscellaneous); (12) suffocation by gases; (13) by explosives; (14) irruptions of water; (15) haulage; (16) by underground machinery; (17) sundries underground; (18) by surface machinery; (19) surface boilers or pipes bursting; (20) on surface railways or tramways belonging to the mine; (21) by electricity; (22) miscellaneous on surface.

A. C. CHATTERJEE,

Secretary to the Government of India.

**APPENDIX IV—*contd.***

**Miscellaneous—*contd.***

**Statement no. 8—*concl.***

A copy is forwarded to all Local Governments and Administrations for information.

Chief Inspector of Mines in India

Railway Department

A copy is also forwarded to the Commissioner, Northern India Salt Revenue, for information.

Secretary, Indian Mining Association

Secretary, Indian Mining Federation

By order, etc.,

H. L. CHIBBER,

*Assistant Secretary to the Government of India.*

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*

## Statement no. 9.

## INDIAN MINES ACT, 1923

(Act No. IV of 1923).

WHEREAS it is expedient to amend and consolidate the law relating to the regulation and inspection of mines; It is hereby enacted as follows:—

## CHAPTER I.

*Preliminary.*

Short title, extent and commencement.

1. (1) This Act may be called the Indian Mines Act, 1923.

(2) It extends to the whole of British India, including British Baluchistan and the Sonthal Parganas.

(3) It shall come into force on the first day of July, 1924.

2. Nothing in this Act shall be construed to affect the provisions of the Upper Burma Ruby XII of 1887. Regulation, 1887.

Saving of Reg. XII of 1887.

Definitions.

3. In this Act, unless there is anything repugnant in the subject or context,—

- (a) "agent," when used in relation to a mine, means any person appointed or acting as the representative of the owner in respect of the management of the mine or of any part thereof, and as such superior to a manager under this Act;
- (b) "Chief Inspector" means the Chief Inspector of Mines appointed under this Act;
- (c) "child" means a person under the age of thirteen years;
- (d) a person is said to be "employed" in a mine who works under appointment by or with the knowledge of the manager, whether for wages or not, in any mining operation, or in cleaning or oiling any part of any machinery used in or about the mine, or in any other kind of work whatsoever incidental to, or connected with, mining operations;
- (e) "Inspector" means an Inspector of Mines appointed under this Act, and includes a District Magistrate when exercising any power or performing any duty of an Inspector which he is empowered by this Act to exercise or perform;
- (f) "mine" means any excavation where any operation for the purpose of searching for or obtaining minerals has been or is being carried on, and includes all works, machinery, tramways and sidings, whether above or below ground, in or adjacent to or belonging to a mine: provided that it shall not include any part of such premises on which a manufacturing process is being carried on unless such process is a process for coke making or the dressing of minerals;
- (g) "owner," when used in relation to a mine, means any person who is the immediate proprietor or lessee or occupier of the mine or of any part thereof, but does not include a person who merely receives a royalty, rent or fine from the mine, or is merely the proprietor of the mine subject to any lease, grant or license for the working thereof, or is merely the owner of the soil and not interested in the minerals of the mine; but any contractor for the working of a mine or any part thereof shall be subject to this Act in like manner as if he were an owner, but not so as to exempt the owner from any liability;
- (h) "prescribed" means prescribed by regulations, rules or bye-laws;
- (i) "qualified medical practitioner" means any person registered under the Medical Act, 1858, or any Act amending the same or under any Act of any legislature in British India providing for the maintenance of a register of medical practitioners, and includes, in any area where no such last-mentioned Act is in force, any person declared by the Local Government, by notification in the local official Gazette, to be a qualified medical practitioner for the purposes of this Act; 21 & 22 Vict. C. 90.
- (j) "regulations," "rules" and "bye-laws" mean respectively regulations, rules and bye-laws made under this Act;
- (k) "serious bodily injury" means any injury which involves, or in all probability will involve, the permanent loss of the use of, or permanent injury to, any limb, or the permanent loss of or injury to the sight or hearing, or the fracture of any limb or the enforced absence of the injured person from work for a period exceeding twenty days; and
- (l) "week" means the period between midnight on Saturday night and midnight on the succeeding Saturday night.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

## CHAPTER II.

*Inspectors.*

4. (1) The Governor General in Council may, by notification in the Gazette of India, appoint a duly qualified person to be Chief Inspector of Mines for the whole of British India, and duly qualified persons to be Inspectors of Mines subordinate to the Chief Inspector.

(2) No person shall be appointed to be Chief Inspector or an Inspector, or, having been appointed, shall continue to hold such office who is or becomes directly or indirectly interested in any mine or mining rights in India.

(3) The District Magistrate may exercise the powers and perform the duties of an Inspector subject to the general or special orders of the Local Government :

Provided that nothing in this sub-section shall be deemed to empower a District Magistrate to exercise any of the powers conferred by section 19 or section 32.

(4) The Chief Inspector and every Inspector shall be deemed to be a public servant within the meaning of the Indian Penal Code.

5. (1) The Chief Inspector may, by order in writing, prohibit or restrict the exercise by any Inspector named, or any class of Inspectors specified, in the order of any power conferred on Inspectors by this Act, and shall, subject as aforesaid, declare the local area or areas within which, or the group or class of mines with respect to which, Inspectors shall exercise their respective powers.

(2) The Inspector shall give information to owners, agents and managers of mines, situate within the local area or areas or belonging to the group or class of mines, in respect of which he exercises powers under sub-section (1) as to all regulations and rules which concern them respectively and as to the places where copies of such regulations and rules may be obtained.

## Powers of Inspectors of Mines.

6. The Chief Inspector and any Inspector may—

(a) make such examination and inquiry as he thinks fit in order to ascertain whether the provisions of this Act and of the regulations, rules and bye-laws and of any orders made thereunder are observed in the case of any mine ;

(b) with such assistants (if any) as he thinks fit, enter, inspect and examine any mine or any part thereof at any reasonable time by day or night, but not so as unreasonably to impede or obstruct the working of the mine ;

(c) examine into, and make inquiry respecting, the state and condition of any mine or any part thereof, the ventilation of the mine, the sufficiency of the bye-laws for the time being in force relating to the mine, and all matters and things connected with or relating to the safety of the persons employed in the mine.

7. Any person in the service of the Government duly authorised by a special order in writing of the Chief Inspector or of an Inspector in this behalf may, for the purpose of surveying, levelling or measuring in any mine, after giving not less than three days' notice to the manager of such mine, enter the mine and may survey, level or measure the mine or any part thereof at any reasonable time by day or night, but not so as unreasonably to impede or obstruct the working of the mine.

8. Every owner, agent and manager of a mine shall afford the Chief Inspector and every Inspector and every person authorised under section 7 all reasonable facilities for making any entry, inspection, survey, measurement, examination or inquiry under this Act.

9. (1) All copies of, and extracts from, registers or other records appertaining to any mine, and all other information acquired by the Chief Inspector or an Inspector or by any one assisting him in the course of the inspection of any mine under this Act or acquired by any person authorised under section 7 in the exercise of his duties thereunder, shall be regarded as confidential.

(2) If the Chief Inspector, or an Inspector or any other person referred to in sub-section (1) discloses to any one, other than a Magistrate or an officer to whom he is subordinate, any



APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

such information as aforesaid without the consent of the Governor General in Council or of the Local Government, he shall be guilty of a breach of official trust, and shall be punishable in the manner provided by section 4 of the Indian Official Secrets Act, 1889.

XV of 1889.

(3) No Court shall proceed to the trial of any offence under this section except on complaint made by order of, or under authority from, the Governor General in Council or the Local Government, or made by a person aggrieved by the offence.

## CHAPTER III.

*Mining Boards and Committees.*

10. (1) The Local Government may constitute for the province, or for any part of the province, or for any group or class of mines in the province, a Mining Board consisting of—

Mining Boards.

- (a) a person in the service of the Government, not being the Chief Inspector or an Inspector, nominated by the Local Government to act as chairman;
- (b) the Chief Inspector or an Inspector;
- (c) two persons, neither of whom shall be the Chief Inspector or an Inspector nominated by the Local Government, of whom one shall be a person qualified to represent the interests of persons employed in mines;
- (d) two persons nominated by owners of mines or their representatives in such manner as may be prescribed.

(2) The chairman shall appoint a person to act as secretary to the Board.

(3) The Local Government may give directions as to the payment of travelling expenses incurred by the secretary or any member of any such Mining Board in the performance of his duty as such secretary or member.

11. (1) Where under this Act any question relating to a mine is referred to a Committee, the Committee shall consist of—

Committees.

- (a) a chairman nominated by the Local Government or by such officer or authority as the Local Government may authorise in this behalf;
- (b) a person nominated by the chairman and qualified by experience to dispose of the question referred to the Committee; and
- (c) two persons of whom one shall be nominated by the owner, agent or manager of the mine concerned, and the other shall be nominated by the Local Government to represent the interests of the persons employed in the mine.

(2) No Inspector or person employed in or in the management of any mine concerned shall serve as chairman or member of a Committee appointed under this section.

(3) Where an owner, agent or manager fails to exercise his power of nomination under clause (c) of sub-section (1), the Committee may, notwithstanding such failure, proceed to inquire into and dispose of the matter referred to it.

(4) The Committee shall hear and record such information as the Chief Inspector or the Inspector, or the owner, agent or manager of the mine concerned, may place before it, and shall intimate its decision to the Chief Inspector or the Inspector and to the owner, agent or manager of the mine, and shall report its decision to the Local Government.

(5) On receiving such report the Local Government shall pass orders in conformity therewith unless the Chief Inspector or the owner, agent or manager of the mine has lodged an objection to the decision of the Committee, in which case the Local Government may proceed to review such decision and to pass such orders in the matter as it may think fit. If an objection is lodged by the Chief Inspector, notice of the same shall forthwith be given to the owner, agent or manager of the mine.

(6) The Local Government may give directions as to the remuneration, if any, to be paid to the members of the Committee or any of them, and as to the payment of the expenses of the inquiry including such remuneration.

12. (1) Any Mining Board constituted under section 10 and any Committee constituted under section 11 may exercise such of the powers of an Inspector under this Act as it thinks necessary or expedient to exercise for the purpose of deciding or reporting upon any matter referred to it.

Powers of Mining Boards.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

V of 1908.

XLV of 1800.

(2) Every Mining Board constituted under section 10 and every Committee appointed under section 11 shall have the powers of a Civil Court under the Code of Civil Procedure, 1908, for the purpose of enforcing the attendance of witnesses and compelling the production of documents and material objects; and every person required by any such Mining Board or Committee to furnish information before it shall be deemed to be legally bound to do so within the meaning of section 176 of the Indian Penal Code.

13. The Local Government may direct that the expenses of any inquiry conducted by a Mining Board constituted under section 10 or by a Committee appointed under section 11 shall be borne in whole or in part by the owner or agent of the mine concerned, and the amount so directed to be paid may, on application by the Chief Inspector or an Inspector to a Magistrate having jurisdiction at the place where the mine is situated or where such owner or agent is for the time being resident, be recovered by the distress and sale of any moveable property within the limits of the Magistrate's jurisdiction belonging to such owner, agent or manager.

Recovery of expenses.

## CHAPTER IV.

*Mining Operations and Management of Mines.*

14. The owner, agent or manager of a mine shall, in the case of an existing mine within one month from the commencement of this Act or, in the case of a new mine, within three months after the commencement of mining operations, give to the District Magistrate of the district in which the mine is situated notice in writing in such form and containing such particulars relating to the mine as may be prescribed.

Notice to be given of mining operations.

15. (1) Save as may be otherwise prescribed, every mine shall be under one manager who shall have the prescribed qualifications and shall be responsible for the control, management and direction of the mine, and the owner or agent of every mine shall appoint himself or some other person, having such qualifications, to be such manager.

Managers.

(2) If any mine is worked without there being a manager for the mine as required by subsection (1), the owner and agent shall each be deemed to have contravened the provisions of this section.

16. (1) The owner, agent and manager of every mine shall be responsible that all operations carried on in connection therewith are conducted in accordance with the provisions of this Act and of the regulations, rules and bye-laws and of any orders made thereunder.

Duties and responsibilities of owners, agents and managers.

(2) In the event of any contravention of any such provisions by any person whomsoever, the owner, agent and manager of the mine shall each be deemed also to be guilty of such contravention unless he proves that he had taken all reasonable means, by publishing and to the best of his power enforcing those provisions, to prevent such contravention:

Provided that the owner or agent shall not be so deemed if he proves—

- (a) that he was not in the habit of taking, and did not in respect of the matter in question take, any part in the management of the mine; and
- (b) that he had made all the financial and other provisions necessary to enable the manager to carry out his duties; and
- (c) that the offence was committed without his knowledge, consent or connivance.

(3) Save as hereinbefore provided, it shall not be a defence in any proceedings brought against an owner or agent of a mine under this section that a manager of the mine has been appointed in accordance with the provisions of this Act.

## CHAPTER V.

*Provisions as to Health and Safety.*

17. There shall be provided and maintained for every mine latrine and urinal accommodation of such kind and on such scale, and such supply of water fit for drinking, as may be prescribed.

Conservancy.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

18. At every mine in respect of which the Local Government may, by notification in the local official Gazette, declare this section to apply, such supply of ambulances or stretchers, and of splints, bandages and other medical requirements, as may be prescribed, shall be kept ready at hand in a convenient place and in good and serviceable order.

Medical appliances.

19. (1) If, in any respect which is not provided against by any express provision of this Act or of the regulations, rules or bye-laws or of any orders made thereunder, it appears to the Chief Inspector or the Inspector that any mine, or any part thereof or any matter, thing or practice in or connected with the mine, or with the control, management or direction thereof, is dangerous to human life or safety, or defective so as to threaten, or tend to, the bodily injury of any person, he may give notice in writing thereof to the owner, agent or manager of the mine, and shall state in the notice the particulars in which he considers the mine, or part thereof, or the matter, thing or practice, to be dangerous or defective and require the same to be remedied within such time as he may specify in the notice.

Powers of Inspectors when causes of danger not expressly provided against exist or when employment of persons is dangerous.

(2) If the Chief Inspector or an Inspector authorised in this behalf by general or special order in writing by the Chief Inspector is of opinion that there is urgent and immediate danger to the life or safety of any person employed in any mine or part thereof, he may, by an order in writing containing a statement of the grounds of his opinion, prohibit, until the danger is removed, the employment in or about the mine or part thereof of any person whose employment is not in his opinion reasonably necessary for the purpose of removing the danger.

(3) Where an order has been made under sub-section (2) by an Inspector, the owner, agent or manager of the mine may, within ten days after the receipt of the order, appeal against the same to the Chief Inspector who may confirm, modify or cancel the order.

(4) The Chief Inspector or the Inspector making a requisition under sub-section (1) or an order under sub-section (2), and the Chief Inspector making an order (other than an order of cancellation in appeal under sub-section (3)), shall forthwith report the same to the Local Government and shall inform the owner, agent or manager of the mine that such report has been so made.

(5) If the owner, agent or manager of the mine objects to a requisition made under sub-section (1) or to an order made by the Chief Inspector under sub-section (2), or sub-section (3), he may, within twenty days after the receipt of the notice containing the requisition or of the order or after the date of the decision of the appeal, as the case may be, send his objection in writing, stating the grounds thereof, to the Local Government, which shall refer the same to a Committee.

(6) Every requisition made under sub-section (1), or order made under sub-section (2), or sub-section (3) to which objection is made under sub-section (5), shall be complied with pending the receipt at the mine of the decision of the Committee:

Provided that the Committee may, on the application of the owner, agent or manager, suspend the operation of a requisition under sub-section (1) pending its decision on the objection.

(7) Nothing in this section shall affect the powers of a Magistrate under section 144 of the Code of Criminal Procedure, 1898.

V of 1898.

20. When any accident occurs in or about a mine causing loss of life or serious bodily injury, or when an accidental explosion, ignition, outbreak of fire or irruption of water occurs in or about a mine, the owner, agent or manager of the mine shall give such notice of the occurrence to such authorities, and in such form, and within such time, as may be prescribed.

Notice to be given of accidents.

21. (1) When any accidental explosion, ignition, outbreak of fire or irruption of water or other accident has occurred in or about any mine, the Local Government, if it is of opinion that a formal inquiry into the causes of, and circumstances attending, the accident ought to be held, may appoint a competent person to hold such inquiry, and may also appoint any person or persons possessing legal or special knowledge to act as assessor or assessors in holding the inquiry.

Power of Government to appoint court of inquiry in cases of accidents.

(2) The person appointed to hold any such inquiry shall have all the powers of a Civil Court under the Code of Civil Procedure, 1908, for the purpose of enforcing the attendance of witnesses and compelling the production of documents and material objects; and every person

V of 1908.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

XLV of 1800.

required by such person as aforesaid to furnish any information shall be deemed to be legally bound to do so within the meaning of section 176 of the Indian Penal Code.

(3) Any person holding an inquiry under this section may exercise such of the powers of an Inspector under this Act as he may think it necessary or expedient to exercise for the purposes of the inquiry.

(4) The person holding an inquiry under this section shall make a report to the Local Government stating the causes of the accident and its circumstances, and adding any observations which he or any of the assessors may think fit to make.

22. The Local Government may cause any report submitted by a Committee under section 11 or by a court of inquiry under section 21 to be published at such time and in such manner as it may think fit.

Publication of reports.

11 or by a court of inquiry under section 21 to be published at such time and in such manner

## CHAPTER VI.

*Hours and Limitation of Employment.*

Hours of employment.

23. No person shall be employed in a mine—

- (a) on more than six days in any one week,
- (b) if he works above ground, for more than sixty hours in any one week,
- (c) if he works below ground, for more than fifty-four hours in any one week.

24. Nothing in section 23 shall apply to persons who may by rules be defined to be persons holding positions of supervision or management or employed in a confidential capacity.

Supervising staff.

25. In case of an emergency involving serious risk to the safety of the mine or of persons employed therein, the manager may, subject to the provisions of section 19, permit persons to be employed in contravention of section 23 on such work as may be necessary to protect the safety of the mine or of the persons employed therein :

Exemption from provisions regarding employment.

Provided that, where such occasion arises, a record of the fact shall immediately be made by the manager and shall be placed before the Chief Inspector or the Inspector at his next inspection of the mine.

26. No child shall be employed in a mine, or be allowed to be present in any part of a mine which is below ground.

Children.

27. (1) If any question arises between the Chief Inspector or the Inspector and the manager of any mine as to whether any person is a child, the question shall, in the absence of a certificate

Disputes as to age.

as to the age of such person granted in the prescribed manner, be referred by the Chief Inspector or the Inspector for decision to a qualified medical practitioner.

(2) Every certificate as to the age of a person which has been granted in the prescribed manner and any certificate granted by a qualified medical practitioner on a reference under sub-section (1) shall, for the purposes of this Act, be conclusive evidence as to the age of the person to whom it relates.

28. For every mine there shall be kept in the prescribed form and place a register of all persons employed in the mine, of their hours of work, of their days of rest, and of the nature of their respective employments.

Register of employees.

## CHAPTER VII.

*Regulations, Rules and Bye-laws.*

29. The Governor General in Council may, by notification in the Gazette of India, make regulations consistent with this Act for all or any of the following purposes, namely :—

Power of Governor General in Council to make regulations.

- (a) for prescribing the qualifications to be required by a person for appointment as Chief Inspector or Inspector ;

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement no. 9—*contd.*

- (b) for prescribing and regulating the duties and powers of the Chief Inspector and of Inspectors in regard to the inspection of mines under this Act ;
- (c) for prescribing the duties of owners, agents and managers of mines and of persons acting under them ;
- (d) for prescribing the qualifications of managers of mines and of persons acting under them ;
- (e) for regulating the manner of ascertaining, by examination or otherwise, the qualifications of managers of mines and persons acting under them, and the granting and renewal of certificates of competency ;
- (f) for fixing the fees, if any, to be paid in respect of such examinations and of the grant and renewal of such certificates ;
- (g) for determining the circumstances in which and the conditions subject to which it shall be lawful for more mines than one to be under a single manager, or for any mine or mines to be under a manager not having the prescribed qualifications ;
- (h) for providing for the making of inquiries into charges of misconduct or incompetency on the part of managers of mines and persons acting under them and for the suspension and cancellation of certificates of competency ;
- (i) for regulating, subject to the provisions of the Indian Explosives Act, 1884, and IV of 1884 of any rules made thereunder, the storage and use of explosives ;
- (j) for prohibiting, restricting or regulating the employment in mines or in any class of mines of women either below ground or on particular kinds of labour which are attended by danger to the life, safety or health of such women ;
- (k) for providing for the safety of the persons employed in a mine, their means of entrance thereto and exit therefrom, the number of shafts or outlets to be furnished, and the fencing of shafts, pits, outlets, pathways and subsidences ;
- (l) for providing for the safety of the roads and working places in mines, including the siting and maintenance of pillars and the maintenance of sufficient barriers between mine and mine ;
- (m) for providing for the ventilation of mines and the action to be taken in respect of dust and noxious gases ;
- (n) for providing for the care, and the regulation of the use, of all machinery and plant and of all electrical apparatus used for signalling purposes ;
- (o) for requiring and regulating the use of safety lamps in mines ;
- (p) for providing against dangers arising out of the accumulation of water in mines ;
- (q) for prescribing the notices of accidents and dangerous occurrences, and the notices, reports and returns of mineral output, persons employed and other matters provided for by regulations, to be furnished by owners, agents and managers of mines, and for prescribing the forms of such notices, returns and reports, the persons and authorities to whom they are to be furnished, the particulars to be contained in them, and the time within which they are to be submitted ;
- (r) for prescribing the plans to be kept by owners, agents and managers of mines and the manner and places in which such plans are to be kept for purposes of record ;
- (s) for regulating the procedure on the occurrence of accidents or accidental explosions or ignitions in or about mines ;
- (t) for prescribing the form of, and the particulars to be contained in, the notice to be given by the owner, agent or manager of a mine under section 14 ; and
- (u) for prescribing the notice to be given by the owner, agent or manager of a mine before mining operations are commenced at or extended to any point within fifty yards of any railway subject to the provisions of the Indian Railways Act, 1890, or of any public work or classes of public works which the Local Government may, by general or special order, specify in this behalf.

30. The Local Government may, subject to the control of the Governor General in Council by notification in the local official Gazette, make rules consistent with this Act for all or any of the following purposes, namely :—

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

- (a) for providing for the appointment of chairmen and members of Mining Boards, and for regulating the procedure of such Boards ;
- (b) for providing for the appointment of courts of inquiry under section 21, for regulating the procedure and powers of such courts, for the payment of travelling allowance to the members, and for the recovery of the expenses of such courts from the manager, owner or agent of the mine concerned ;
- (c) for prescribing the scale of latrine and urinal accommodation to be provided at mines, the provision to be made for the supply of drinking-water, the supply and maintenance of medical appliances and comforts, the formation and training of rescue brigades, and the training of men in ambulance work ;
- (d) for defining the persons who shall, for the purposes of section 24, be deemed to be persons holding positions of supervision or management or employed in a confidential capacity ;
- (e) for prohibiting the employment in mines of persons or any class of persons who have not been certified by a qualified medical practitioner to be more than thirteen years of age, and for prescribing the manner and the circumstances in which such certificates may be granted and revoked ;
- (f) for prescribing the form of register required by section 28 ;
- (g) for prescribing abstracts of this Act and the vernacular in which the abstracts and the regulations, rules and bye-laws shall be posted as required by sections 32 and 33 ;
- (h) for requiring the fencing of any mine or part of a mine, whether the same is being worked or not, where such fencing is necessary for the protection of the public ;
- (i) for the protection from injury, in respect of any mine when the workings are discontinued, of property vested in His Majesty or any local authority or railway company as defined in the Indian Railways Act, 1890 ;
- (j) for requiring notices, returns and reports in connection with any matters dealt with by rules to be furnished by owners, agents and managers of mines, and for prescribing the forms of such notices, returns and reports, the persons and authorities to whom they are to be furnished, the particulars to be contained in them, and the times within which they are to be submitted ; and
- (k) generally to provide for any matter not provided for by this Act or the regulations, provision for which is required in order to give effect to this Act.

31. (1) The power to make regulations and rules conferred by sections 29 and 30 is subject to the condition of the regulations and rules being made after previous publication.

Prior publication of regulations and rules.

(2) The date to be specified in accordance with clause (3) of section 23 of the General Clauses Act, 1897, as that after which a draft of regulations or rules proposed to be made will be taken under consideration, shall not be less than three months from the date on which the draft of the proposed regulations or rules is published for general information.

(3) Before the draft of any regulation or rule is published under this section it shall be referred in the case of a regulation to every Mining Board constituted in British India, and in the case of a rule to every Mining Board constituted in the province ; and the regulation or rule shall not be so published until each such Board has had a reasonable opportunity of reporting as to the expediency of making the same and as to the suitability of its provisions.

(4) Regulations and rules shall be published in the Gazette of India and the local official Gazette, respectively, and, on such publication, shall have effect as if enacted in this Act.

32. (1) The owner, agent or manager of a mine may, and shall, if called upon to do so by the Chief Inspector or Inspector, frame and submit to the Chief Inspector or Inspector a draft

Bye-laws.

of such bye-laws, not being inconsistent with this Act or any regulations or rules for the time being in force, for the control and guidance of the persons acting in the management of, or employed in, the mine as such owner, agent or manager may deem necessary to prevent accidents and provide for the safety, convenience and discipline of the persons employed in the mine.

(2) If any such owner, agent or manager—

- (a) fails to submit within two months a draft of bye-laws after being called upon to do so by the Chief Inspector or Inspector, or

IX of 1890.

X of 1897.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

(b) submits a draft of bye-laws which is not in the opinion of the Chief Inspector or Inspector sufficient,

the Chief Inspector or Inspector may—

- (i) propose a draft of such bye-laws as appear to him to be sufficient, or
- (ii) propose such amendments in any draft submitted to him by the owner, agent or manager as will, in his opinion, render it sufficient,

and shall send such draft bye-laws or draft amendments to the owner, agent or manager, as the case may be, for consideration.

(3) If within a period of two months from the date on which any draft bye-laws or draft amendments are sent by the Chief Inspector or Inspector to the owner, agent or manager under the provisions of sub-section (2), the Chief Inspector or Inspector and the owner, agent or manager are unable to agree as to the terms of the bye-laws to be made under sub-section (1), the Chief Inspector or Inspector shall refer the draft bye-laws for settlement to the Mining Board or, where there is no Mining Board, to such officer or authority as the Local Government may, by general or special order, appoint in this behalf.

(4) (a) When such draft bye-laws have been agreed to by the owner, agent or manager and the Chief Inspector or Inspector, or, when they are unable to agree, have been settled by the Mining Board or such officer or authority as aforesaid, a copy of the draft bye-laws shall be sent by the Chief Inspector or Inspector to the Local Government for approval.

(b) The Local Government may make such modifications of the draft bye-laws as it thinks fit.

(c) Before the Local Government approves the draft bye-laws, whether with or without modifications, there shall be published, in such manner as the Local Government may think best adapted for informing the persons affected, notice of the proposal to make the bye-laws and of the place where copies of the draft bye-laws may be obtained, and of the time (which shall not be less than thirty days) within which any objections with reference to the draft bye-laws, made by or on behalf of persons affected, should be sent to the Local Government.

(d) Every objection shall be in writing and shall state—

- (i) the specific grounds of objection and
- (ii) the omissions, additions or modifications asked for.

(e) The Local Government shall consider any objection made within the required time by or on behalf of persons appearing to it to be affected, and may approve the bye-laws either in the form in which they were published or after making such amendments thereto as it thinks fit.

(5) The bye-laws, when so approved by the Local Government, shall have effect as if enacted in this Act, and the owner, agent or manager of the mine shall cause a copy of the bye-laws, in English and in such vernacular or vernaculars as may be prescribed, to be posted up in some conspicuous place at or near the mine, where the bye-laws may be conveniently read or seen by the persons employed; and, as often as the same become defaced, obliterated or destroyed, shall cause them to be renewed with all reasonable despatch.

(6) The Local Government may, by order in writing, rescind, in whole or in part, any bye-law so made, and thereupon such bye-law shall cease to have effect accordingly.

33. There shall be kept posted up at or near every mine in English and in such vernacular or vernaculars as may be prescribed, the prescribed abstracts of the Act and of the regulations and rules.

## CHAPTER VIII.

*Penalties and Procedure.*

34. (1) Whoever obstructs the Chief Inspector, an Inspector or any person authorised under section 7 in the discharge of his duties under this Act, or refuses or wilfully neglects to afford the Inspector, an Inspector or such person any reasonable facility for making any entry, inspection, examination or inquiry authorised by or under this Act in relation to any mine, shall be punishable with imprisonment for a term which may extend to three months, or with fine which may extend to five hundred rupees, or with both.

Obstruction.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

(2) Whoever refuses to produce on the demand of the Chief Inspector or Inspector any registers or other documents kept in pursuance of this Act, or prevents or attempts to prevent or does anything which he has reason to believe to be likely to prevent, any person from appearing before or being examined by an inspecting officer acting in pursuance of his duties under this Act, shall be punishable with fine which may extend to three hundred rupees.

Falsification of records, etc.

35. Whoever—

- (a) counterfeits, or knowingly makes a false statement in, any certificate, or any official copy of a certificate, granted under this Act, or
- (b) knowingly uses as true any such counterfeit or false certificate, or
- (c) makes or produces or uses any false declaration, statement or evidence knowing the same to be false, for the purpose of obtaining for himself or for any other person a certificate, or the renewal of a certificate, under this Act, or any employment in a mine, or
- (d) falsifies any plan or register or record the maintenance of which is required by or under this Act, or
- (e) makes, gives or delivers any plan, return, notice, record or report containing a statement, entry or detail which is not to the best of his knowledge or belief true,

shall be punishable with imprisonment for a term which may extend to three months, or with fine which may extend to five hundred rupees, or with both.

36. Any person who, without reasonable excuse the burden of proving which shall lie upon him, omits to make or furnish in the prescribed form or manner or at or within the prescribed time any plan, return, notice, register, record or report required by or under this Act to be made or furnished shall be punishable with fine which may extend to two hundred rupees.

Omission to furnish plans, etc.

37. Whoever, save as permitted by section 25, contravenes any provision of this Act or of any regulation, rule or bye-law or of any order made thereunder prohibiting, restricting or regulating the employment or presence of persons in or about a mine shall be punishable with fine which may extend to five hundred rupees.

Contravention of provisions regarding employment of labour.

38. Whoever, in contravention of the provisions of section 20, fails to give notice of any accidental occurrence shall, if the occurrence results in serious bodily injury, be punishable with fine which may extend to five hundred rupees, or, if the occurrence results in loss of life, be punishable with imprisonment which may extend to three months or with fine which may extend to five hundred rupees, or with both.

Notice of accidents.

39. Whoever contravenes any provision of this Act or of any regulation, rule or bye-law or of any order made thereunder for the contravention of which no penalty is hereinbefore provided shall be punishable with fine which may extend to one thousand rupees, and, in the case of a continuing contravention, with a further fine which may extend to one hundred rupees for every day on which the offender is proved to have persisted in the contravention after the date of the first conviction.

Disobedience of orders.

40. (1) Notwithstanding anything hereinbefore contained, whoever contravenes any provision of this Act or of any regulation, rule or bye-law or of any order made thereunder, shall be punishable, if such contravention results in loss of life, with imprisonment which may extend to one year, or with fine which may extend to two thousand rupees, or with both; or, if such contravention results in serious bodily injury, with imprisonment which may extend to six months, or with fine which may extend to one thousand rupees, or with both; or, if such contravention otherwise causes injury or danger to workers or other persons in or about the mine, with imprisonment which may extend to one month, or with fine which may extend to five hundred rupees, or with both.

(2) Where a person having been convicted under this section is again convicted thereunder, he shall be punishable with double the punishment provided by sub-section (1).

(3) Any Court imposing, or confirming in appeal, revision or otherwise, a sentence of fine passed under this section may, when passing judgment, order the whole or any part of



APPENDIX IV.—*contd.*MISCELLANEOUS—*contd.*Statement no. 9—*contd.*

the fine recovered to be paid as compensation to the person injured, or, in the case of his death, to his legal representative :

Provided that, if the fine is imposed in a case which is subject to appeal, no such payment shall be made before the period allowed for presenting the appeal has elapsed, or, if an appeal has been presented, before the decision of the appeal.

41. No prosecution shall be instituted against any owner, agent or manager for any offence under this Act except at the instance of the Chief Inspector or of the District Magistrate or of an Inspector authorised in this behalf by general or special order in writing by the Chief Inspector.

Prosecution of owner, agent or manager.

42. No Court shall take cognizance of any offence under this Act unless complaint thereof has been made within six months of the date on which the offence is alleged to have been committed.

Limitation of prosecutions.

43. No Court inferior to that of a Presidency Magistrate or Magistrate of the first class shall try any offence under this Act which is alleged to have been committed by any owner, agent or manager of a mine or any offence which is by this Act made punishable with imprisonment.

Cognizance of offences.

44. (1) If the Court trying any case instituted at the instance of the Chief Inspector or of the District Magistrate or of an Inspector under this Act is of opinion that the case is one which should, in lieu of a prosecution, be referred to a Mining Board or a Committee, it may stay the criminal proceedings, and report the matter to the Local Government with a view to such reference being made.

Reference to Mining Board or Committee in lieu of prosecution in certain cases.

(2) On receipt of a report under sub-section (1), the Local Government may refer the case to a Mining Board or a Committee, or may direct the Court to proceed with the trial.

## CHAPTER IX.

*Miscellaneous.*

45. If any question arises as to whether any excavation or working is a mine within the meaning of this Act, the Local Government may decide the question, and a certificate signed by a Secretary to the Local Government shall be conclusive on the point.

Decision of question whether a mine is under this Act.

46. (1) The Governor General in Council may, by notification in the Gazette of India, exempt any local area or any mine or group or class of mines or any part of a mine or any class of persons from the operation of all or any specified provisions of this Act :

Power to exempt from operation of Act.

Provided that no local area or mine or group or class of mines shall be exempted from the provisions of section 26 unless it is also exempted from the operation of all the other provisions of this Act.

(2) On the occurrence of any public emergency, the Local Government may, by an order in writing, confer any exemption which might be conferred by the Governor General in Council under sub-section (1). When such an order is made, a copy thereof shall forthwith be sent to the Governor General in Council.

47. The Governor General in Council and every Local Government may reverse or modify any order passed under this Act by any authority subject to his or its control, as the case may be.

Power to alter or rescind orders.

Application of Act to Crown mines.

48. This Act shall apply to mines belonging to the Crown.

49. No suit, prosecution or other legal proceeding whatever shall lie against any person for anything which is in good faith done or intended to be done under this Act.

Saving.

50. On and from the commencement of this Act, the enactments mentioned in the Schedule shall be repealed to the extent specified in the fourth column thereof.

Repeals.

APPENDIX IV—*concl'd.*MISCELLANEOUS—*concl'd.*Statement no. 9—*concl'd.*

## THE SCHEDULE.

*(See section 59.)*

## ENACTMENTS REPEALED.

Year.	No.	Short title.	Extent of repeal.
1901	VIII	The Indian Mines Act, 1901.	The whole.
1914	IV	The Decentralisation Act, 1914.	So much of the Schedule as relates to the Indian Mines Act, 1901.
"	X	The Repealing and Amending Act, 1914.	So much of the Second Schedule as relates to the Indian Mines Act, 1901.

H. MONCRIEFF SMITH,

*Secretary to the Government of India.*

## Statement no. 10.

## LAND ACQUISITION (MINES) ACT, 1885.

Particulars required to be furnished by colliery owners to Local Governments when giving notice under Section IV of the Land Acquisition (Mines) Act, 1885, of their intention to work coal under land acquired for a railway :—

- (a) The name, residence and profession of the person giving the notice.
- (b) The name of the mine, together with that of the village and district in which the mine is situate.
- (c) The name of the railway line or of the siding and the main line to which the siding is attached, under which the mine is situate.
- (d) The names of the railway stations and the mileage between which the said siding, or the said portion of the railway land, under which the mine is situate, falls.
- (e) The number and date of the declaration under which the land was acquired.
- (f) A tracing showing the boundaries of, and the area over which, the acquired land extends.