

Department of Mines, India

*-R-2007*

**REPORT**



OF THE

**CHIEF INSPECTOR OF MINES IN INDIA**

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

**FOR THE YEAR ENDING**

**31st December 1921**

BY

**R. R. SIMPSON, M.Sc.**

*Chief Inspector of Mines in India*



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SECTION II.—OUTPUT OF MINERALS— <i>contd.</i>	PAGE.
Gems Beryl . . . . .	5
" market adversely affected by general financial depression and heavy taxation . . . . .	5
Gold output, decrease in . . . . .	6
" " compared with previous year . . . . .	6
Copper ore output, increase in . . . . .	6
" " compared with previous year . . . . .	6
" " low production due partly to mechanical troubles . . . . .	6
Iron ore . . . . .	6
" " output, increase in . . . . .	6
" " break of increase from a new mine in the Singbhum District . . . . .	6
Chromite ore output, large increase . . . . .	6
Limestone output, increase in . . . . .	6
Steatite " decrease . . . . .	6
Graphite " " . . . . .	6
Onbre " increase . . . . .	6
Barytes " increase in . . . . .	6
Slate " " in . . . . .	6
Magnesite " " in . . . . .	6
Apatite " . . . . .	6
Clay " decrease in . . . . .	6
Fuller's earth " " in . . . . .	6
Molybdenite " increase . . . . .	6
Bauxite " " in . . . . .	6
<b>SECTION III—ACCIDENTS—</b>	
Accident, increase in . . . . .	6
" compared with previous year . . . . .	6
" " " average of preceding 5 years . . . . .	6
" loss of lives involved, increase on previous year . . . . .	6
" " " " classified . . . . .	7
" increase of, by falls of roof and sides . . . . .	7
" " " " haulage . . . . .	7
" decrease of, in shafts . . . . .	7
" by explosion of firedamp . . . . .	7
" " explosives, increase in . . . . .	7
" " electricity . . . . .	7
Death-rates per thousand persons employed in India . . . . .	7
" " " " at coal mines only . . . . .	7
" " " " in the United Kingdom at coal mines only . . . . .	7
" " " million tons of coal raised in India . . . . .	7
" " " " " " " " " " United Kingdom . . . . .	7
Number of deaths in each class of mineral worked . . . . .	8
Deaths classified . . . . .	8
" non-statistical . . . . .	8
Accidents commented upon . . . . .	8
<b>Explosions of firedamp—</b>	
Accident at the Eastern Coal Company, Limited's Amlabad coal mine . . . . .	8, 9
" " " New Beerbhum Coal Company, Limited's Victoria coal mine . . . . .	9
<b>Falls of roof—</b>	
Accident at the Burrakur Coal Company, Limited's Katras coal mine . . . . .	9
" " " Raniganj Coal Association Limited's Kustore South coal mines . . . . .	10
" " " His Highness the Maharaja of Cossimbazar's Ekra coal mine . . . . .	10, 11
" " " Katras Jharia Coal Company, Limited's Seebpur coal mine . . . . .	11
<b>Falls of side—</b>	
• Accident at the East Bagdigi Colliery Company's East Bagdigi coal mine . . . . .	11, 12
" " " Bhulanbarari Coal Company, Limited's Bhulanbarari coal mine . . . . .	12
" " " Raniganj Coal Association, Limited's Alkusa South coal mine " . . . . .	12
<b>In shafts—</b>	
<b>Miscellaneous—</b>	
Accident at the Burrakur Coal Company, Limited's Katras coal mine . . . . .	13
<b>Haulage—</b>	
Accident at the Pandaveswar Colliery, Limited's Pandaveswar coal mine . . . . .	13, 14

	PAGE.
<b>SECTION III.—ACCIDENTS—<i>contd.</i></b>	
Accident at the Samia Kendra Collieries, Limited's Chatrisgonda coal mine . . . . .	14
" " " Jainty Central Colliery, Limited's Jainty Central coal mine . . . . .	14
Miscellaneous on surface—	
Accident at Messrs. Chamanlal Mangaldas and Company's Kendwadih coal mine . . . . .	15
Non-fatal Accidents—Explosives—	
Accident at the Tata Iron and Steel Company, Limited's Sijua coal mine . . . . .	15
<b>SECTION IV.—PROSECUTIONS AND ADDITIONS TO THE ACT—</b>	
Prosecutions under the Indian Mines Act—	
Messrs. Samanta Brothers' Egarsoor coal mine . . . . .	16
West Ghusick Coal Company's West Ghusick coal mine . . . . .	16
West Dobalia Coal Company's West Ghusick coal mine . . . . .	16
Babu J. C. Dutt's Chapapur coal mine . . . . .	16
" E. L. Mukherji's Pahargora coal mine . . . . .	16
" B. P. Singh's Kalipahari coal mine . . . . .	16
Rampur Colliery, Limited's Rampur coal mine . . . . .	16
Babu B. B. Ghose's Sibdaspur coal mine . . . . .	16
" S. N. Bose's Bandarobua coal mine . . . . .	16
Burrakur Coal Company, Limited's Katras coal mine . . . . .	16
Babu Sheorandas Ramniranjandas' Laxmi coal mine . . . . .	16
Messrs. Agarwalla Brothers' Bokharo Jharia coal mine . . . . .	16
East Bagdigi Coal Company's East Bagdigi coal mine . . . . .	16
Babu Ramohandra Shewdanmal's Dhansar coal mine . . . . .	17
" Nafar Chandra Pal Chowdhury's Burdiadh coal mine . . . . .	17
Messrs. C. M. and Company's Kondwadih coal mine . . . . .	17
Babu Jagmohan Ramjibon Marwari's Satpokuria-Kristoganj coal mine . . . . .	17
Begunia Coal Concern, Limited's Khudika coal mine . . . . .	17
East Barari Coal Company's Jinagora coal mine . . . . .	17
Babu J. P. Lalla's Mandra coal mine . . . . .	17
" Pir Mohan Lal's Muraidih coal mine . . . . .	17
Central Muraidih Coal Company's Central Muraidih coal mine . . . . .	17
Pench Valley Coal Company, Limited's Barkui coal mine . . . . .	17
The owners of 16 mines for non-submission of Annual Returns for 1920 . . . . .	17
Prosecutions of employees under the Special Rules—	
Joba Coal Company, Limited's Joba coal mine . . . . .	17
Samla Kendra Colliery Limited's Samla and Kendra coal mine . . . . .	18
Bengal Nagpur Coal Company, Limited's Bhuggatdih coal mine . . . . .	18
East India Coal Company, Limited's Barari coal mine . . . . .	18
Sitarampur Coal Company's Narsamuda coal mine . . . . .	18
Baraboni Coal Concern, Limited's Chotanuni coal mine . . . . .	18
Equitable Coal Company, Limited's Dishergarh coal mine . . . . .	18
Babu N. M. Chowdhary's Niluripatia coal mine . . . . .	18
Burrakur Coal Company, Limited's Katras coal mine . . . . .	18
Villiers Limited's Jainty coal mine . . . . .	18
Cancellation of a Permit on account of mismanagement discovered by inspection . . . . .	18
Section 21—Establishment of Special Rules at coal and manganese mines . . . . .	18
<b>SECTION V.—GENERAL REMARKS—</b>	
Health and Sanitation—	
Asansol Mines Board of Health—	
Number of meetings . . . . .	18
Epidemic diseases . . . . .	18
Anti-malarial investigations . . . . .	18
Lectures on sanitation and hygiene continued . . . . .	19
Jharia Mines Board of Health—	
Number of meetings . . . . .	19
Area of the Mining Settlements extended to embrace the whole of Dhanbad sub-division . . . . .	19
Epidemic diseases . . . . .	19
Rainfall statistics—	
New Jharia Water Works and coal-fields of Jharia, Giridih and Raniganj . . . . .	19

SECTION V.—GENERAL REMARKS— <i>contd.</i>	PAGE.
<b>Mining Education—</b>	
Report of Principal, Bengal Engineering College . . . . .	19
Annual Mining Camp, " " " . . . . .	19
Mining Education Advisory Board, Meetings held by . . . . .	19
Changes in personnel of instructors . . . . .	19
Result of sessional examination . . . . .	19
Appointment of full-time lecturers in the Jharia coalfield . . . . .	19
<b>BOARD OF EXAMINERS FOR COAL MINE MANAGERS' CERTIFICATES—</b>	
Personnel of Board . . . . .	20
Number of meetings held . . . . .	20
" " Indian certificates granted in lieu of English certificates . . . . .	20
Result of examination for colliery managers' certificates of competency . . . . .	20
Local Examiners and Secretaries . . . . .	20
Regulations made by the Board of Examiners . . . . .	20, 96—98
<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
Discontinuance of researches of subsidence Committee . . . . .	21
Inauguration of local Branch of the Institute in the Central Provinces . . . . .	21
Award of Government prize . . . . .	21
" " Institute medals . . . . .	21
<b>ASSOCIATION OF COLLIERY MANAGERS IN INDIA—</b>	
Membership . . . . .	21
Questions dealt with by Council . . . . .	21
Appointment of a member as a non-official member of the Jharia Mines Board of Health . . . . .	21
<b>TRUE MERIDIAN LINES IN THE COALFIELDS PLANS SHOWING THE LOCATIONS OF THE LINES IN THE RANIGANJ AND JHARIA COALFIELDS . . . . .</b>	21
<b>LAND ACQUISITION (MINES) ACT, 1885—</b>	
Number of cases disposed of . . . . .	21
<b>REGISTER OF APPLICANTS FOR EMPLOYMENT HOLDING FIRST OR SECOND CLASS COLLIERY MANAGERS' CERTIFICATES . . . . .</b>	22
<b>OFFICIAL DUTIES—</b>	
Personnel . . . . .	22
<b>APPENDIX I.—STATISTICS OF MINES AND MINERALS—</b>	
Table No. 1.—Number of mines and workers and output of Minerals . . . . .	23—37
" " 2.—Analyses of figures relating to output of coal . . . . .	38—39
" " 3.—Number of mines opened and closed . . . . .	40—43
" " 4.—Fluctuations of outputs . . . . .	44
" " 5.—Coal raised and death rates . . . . .	44
<b>APPENDIX II.—ACCIDENTS IN MINES—</b>	
Table No. 1.—List of fatal accidents . . . . .	45—76
" " 2.—Fatal and serious accidents . . . . .	77—81
" " 3.—Fatal accidents and deaths classified according to age and sex . . . . .	82—83
" " 4.—Fatal accidents classified according to cause . . . . .	84
<b>APPENDIX III.—PROSECUTIONS UNDER THE ACT . . . . .</b>	85, 86
<b>APPENDIX IV.—MISCELLANEOUS—</b>	
Statement No. 1.—List of Inspection Circles . . . . .	87
" " 2.—List of certificate holders . . . . .	87—89
" " 3.—List of Mining Universities and Colleges approved by Government for purposes of Rules 32 and 33 of the Act . . . . .	90
" " 4.—Bengal Engineering College mining classes . . . . .	91—92
" " 5.—Mining Instruction in Bengal . . . . .	93
" " 6.—" " Bihar and Orissa . . . . .	94—96
" " 7.—Regulations of the Board of Examiners . . . . .	96—96
" " { 8. } —Government of Burma Notification exempting certain Mines from the " { 9. } operation of the Act . . . . .	99
" " 10.—Particulars to be furnished under Section 4, Land Acquisition (Mines) Act, 1885 . . . . .	100

FROM

R. R. SIMPSON, Esq., M.Sc.,  
*Chief Inspector of Mines in India,*

TO

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

*Dated Dhanbad, the 23rd May 1922.*

SIR,

I have the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1921.

### 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

Lists of mines worked under the Indian Mines Act, 1901, in British India during the year ending the 31st December 1921 are stocked for sale to the public at the office of the Chief Inspector of Mines in India, Post Box No. 60, Dhanbad, East Indian Railway, Mahabum District.

Some mines in the States having similarly been brought under the Act in the previous year. The Government of Burma were pleased to exempt from the operation of the Act all stone quarries in Burma, steatite mines in the Minbu district and the ruby workings and Twinza oil wells worked by native methods in the Katha district and the Magwe division, respectively.

#### Section I.--Persons employed.

During the year 1921 the daily average number of persons working in and about the mines regulated by the Indian Mines Act was 249,663, as compared with 234,199 in the previous year. This is an increase of 15,464 persons or 6.60 per cent. Of these persons 149,299 worked underground and 100,364 on the surface.

One hundred and forty nine thousand one hundred and sixty six were adult males, 91,949 were adult females and 8,548 were children under 12 years of age.

Those employed in coal mines numbered 190,647 which is 14,704 more than those employed in 1920 and slightly greater than the number employed in 1919 for an output of coal some three and a half million tons greater.

There was again an acute scarcity of coal mining labour in the Bengal and Bihar and Orissa coalfields. The general discontent caused by the high cost of food and clothing was fanned by political agitators, with the result that there were sporadic strikes. The holding of the All India Trade Union Congress in the Jharia coalfield towards the end of the year had a disturbing influence, and work more or less ceased at the collieries for a week or longer. No solid benefit has resulted from the deliberations of the Congress, but the delegates

who attended had opportunities of learning how much has been done by the companies operating the larger mines to improve the lot of the mine workers. One point in the discussion obtained considerable notice, and this was the readiness of the mine owners to increase wages provided that the miners worked with greater regularity and produced more coal.

There was no general increase in the contract rate for coal getting, but the stress of competition for the limited supply of labour undoubtedly led to indirect payments equivalent to an increase of wages. There was no serious epidemic disease and the general health of the labour force was good.

At the Margherita collieries in Upper Assam employment could have been found for a larger number of workers. There were 1,641 recruitments and 432 repatriations. The total labour population was 7,586 persons, of whom 4,858 were adult workers. There were no epidemics or strikes during the year. The labour unrest on the tea gardens had not affected the mine workers. No further increase of wages was given.

In the Central Provinces imported labour was as usual used for mining purposes. For light work such as the removal of overburden in quarries local labourers are employed, and they were available in sufficient numbers. The general health of the mining camps was good.

At the Bawdwin lead-silver mine in the Northern Shan States, Upper Burma, there was again a shortage of labour. The force is cosmopolitan to a degree, but the majority of the miners are Chinese. They migrate annually from the province of Yunnan. Efforts are being made to settle these workers on the mines. There were no strikes during the year, and but little sickness. A new general hospital is under construction.

In the Hazaribagh mica field there was a certain amount of unrest due to outside agitators. There was a demand for higher wages and a distinct tendency to insubordination and contempt for orders. When it was found, however, that, owing to the depressed state of the mica market the working of the mines was being restricted as far as possible, agitation ceased and there was no more trouble.

At the copper mines in the Singhbhum district there were no organised strikes, but more or less successful attempts were made to prevent women from working at ore-sorting and similar work on the surface. The general health of the employees was fair, but there was a good deal of malaria.

At the Khewra salt mine in the Punjab there were serious labour difficulties. Influenced by outsiders the miners put forward certain unreasonable demands. They came out on strike at the beginning of February and remained on strike for nearly four months, when they returned to work on the old terms. Some few months later wages were increased by 12½ per cent.

## 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 1920 and 1921 :—

Province.	Output in tons.	
	1921.	1920.
Assam . . . . .	312,022	324,965
Baluchistan . . . . .	42,155	27,672
Bengal . . . . .	4,259,642	4,207,452
Bihar and Orissa . . . . .	12,964,659	11,978,339
Burma . . . . .	300	...
Central Provinces . . . . .	712,914	491,205
Punjab . . . . .	67,242	58,078
<b>TOTAL . . . . .</b>	<b>18,358,934</b>	<b>17,082,711</b>



The total output in 1921 was 18,358,934 tons which is 1,276,223 tons or 7.47 per cent. more than in the previous year, when a decrease in the output of 21.49 per cent. was recorded.

The opening stocks in 1921 were 2,403,530 tons and the closing stocks 2,104,725 tons. The fact that the closing stocks were so considerable is evidence of the inadequacy of the supply of railway wagons. Matters would have been much worse in this respect if a better supply of labour had enabled the mines to be worked to their full capacity.

The despatches amounted to 15,780,799 tons, and 2,436,367 tons were consumed on the collieries. The quantity of coal used for coking was 440,573 tons, and 121,136 tons of hard coke and 151,417 tons of soft coke were made. The marked decreases in 1920 and 1921 in the figures for the production of coke are misleading. At a large number of collieries coal is now despatched from the collieries to coke plants elsewhere, and this coal is included under despatches. The figures for coke given in this report relate only to coke made on the collieries. In the revised form of Annual Returns mine owners will be required to state the amount of coal despatched to coke factories.

Analyses of the figures relating to the output of coal and the manufacture of coke will be found in Appendix I, Table II, on page 38.

The bulk of the increase was in Bihar and Orissa and Bengal. Figures of output for the two principal coalfields are as follows :—

	Output in tons.		Percentage of increase.
	1921.	1920.	
Jharia Coalfield ... ..	10,059,649	9,294,040	8.24
Raniganj Coalfield ... ..	5,211,845	4,997,679	4.29

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

Except for a slight decrease in Assam there were increases of output in all other provinces. Mines in the Central Provinces were exceptionally prosperous and increased their output by 45 per cent.

There was no improvement in the wagon supply, and the efforts of the Coal Transportation Committee to bring in a scheme for better allotment of wagons failed owing to the various interests clashing. Exports of coal were restricted for the whole year. Prices of coal remained high owing to the demand being far in excess of the supply. Very high prices were paid for odd wagons secured on public supply.

Although the increase in the total output was considerable (7.47 per cent.) yet there was probably an actual decrease in the output of first class coal. There was a great extension of quarrying operations owing to the greater ease with which labour for working open quarries can be obtained. Many of these quarries are connected to underground workings which will inevitably be flooded out during the rainy season. Another bad effect of the scarcity of labour has been the systematic reduction of the pillars of coal left to support the roofs of mines. A number of mines have been ruined by this process and large quantities of coal have been lost for ever.

The keen demand for Central Provinces coal which was apparent at the close of the year 1920 fell away early in the year owing to the increase in output coinciding with a short ginning season locally, consequent on poor cotton crops. It improved, however, when, owing to the coal strike in England, imports of coal ceased. Before the middle of the year these favourable factors combined with the scarcity of coal in Bengal created a flourishing trade for Central Provinces coal, which continued until November. A set back was experienced when foreign coal began to come into Bombay and improved supplies became available from Bengal.

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

	TONS PER PERSON EMPLOYED.			
	Below ground.		Above and below ground.	
	1921.	1916-20.	1921.	1916-20.
British India . . . . .	168	179	96	110
Bengal and Bihar . . . . .	178	183	100	113
Assam . . . . .	145	153	93	99
Baluchistan . . . . .	62	64	37	38
Central Provinces . . . . .	89	117	59	74
Punjab . . . . .	58	69	35	42

In the United Kingdom in 1919 the output of coal per person employed below ground was 242 tons, and per person employed above and below ground 193 tons.

#### MICA.

The output was 29,470 cwt., as compared with 41,667 cwt. in 1920. There was thus a decrease of 34.02 per cent.

Except for a few small orders from America for splittings there was no demand whatever for mica during the year. Many mines were closed. In those which remained at work operations were reduced to the smallest scale possible, and this only to prevent the labourers deserting the mines altogether. There were said to be large stocks of mica in London, and the year closed with no prospect of improvement in sight.

#### MANGANESE ORE.

There was a small decrease (8.22 per cent.) in the output of manganese, the figures being 534,757 tons, as compared with 582,636 tons in 1920. There was a good demand for ore during the early part of the year, but towards the middle, owing to the coal strike in the United Kingdom and the trade depression on the Continent, there was little or no demand. There was a slight improvement towards the end of the year, but generally speaking the year was a poor one for the manganese industry. There was a sharp fall in prices, the average rate being 8*d.* per unit f. o. b. Bombay or Calcutta. Ocean freights ruled at 20*s.* per ton.

#### ROCK SALT.

The output of rock salt was 123,084 tons, as compared with 181,092 tons in 1920. The large decrease was due to a prolonged strike at the Khewra mines. By far the largest output of rock salt is obtained from these mines. The total thickness of the salt beds at Khewra is about 475 feet. They are highly inclined. The mines have been worked for at least 300 years, and from the year 1849, when the British administration of the Punjab commenced, up to 1896 two million tons of salt had been mined. Since that date some two and

a half million tons more have been extracted from the mines. The present average output is about one hundred and thirty thousand tons per annum.

The method of working is a chamber system, the chambers being 40 feet wide and the pillars between the chambers 30 feet wide. They are set out with mathematical accuracy so that each pillar in a lower seam is vertically below the pillars in upper seams. Some of the chambers are as much as 700 feet in length and up to 200 feet in height. Their walls are vertical and dressed smooth by hand. The grandeur of these excavations, pure white in colour or delicately stained with red, must be seen to be appreciated.

#### LEAD-SILVER ORES.

The output of lead and silver ores from the Bawdwin mines in the Northern Shan States, Burma, was 144,089 tons in 1921. The output in 1920 was 128,908 tons. The increase was, therefore, 11·78 per cent. The production of refined lead was 33,717 tons, and of refined silver 3,555,021 ounces. A small quantity of silver (619 ounces) was produced as a bye-product of gold mining in Madras. The average prices obtained were Rs. 348-6-5 per ton of refined lead and Rs. 2-11-0 per standard ounce of refined silver.

#### WOLFRAM AND TIN ORES.

The output of wolfram continued to decline, the decrease for the year being 48·99 per cent. The figures were 884 tons, as compared with 1,733 tons in 1920. There was also a small decrease (2·2 per cent.) in the output of tin ore, the figures being 1,032 tons, as compared with 1,056 tons in 1920. Not a single mine was worked for wolfram alone during the year. In December 1921 twenty-six mixed ore (wolfram and tin) mines and twenty tin mines were at work. In January the price of wolfram was 27*s.* per unit and in December 11*s.* nominal. The price of tin which was £207 per ton early in the year steadily declined to £172 per ton at the end of the year.

At the beginning of the year the Government of Burma inaugurated a scheme for financing the mixed ore producers, and this has to a certain extent helped to keep the industry alive.

#### GEMS.

The output of gems increased by 28·25 per cent., the figures being 200,215 carats, as compared with 156,108 carats in 1920. The quantities of each gem mined were as follows:—

					Carats.
Rubies	...	...	...	...	112,197
Sapphires	...	...	...	...	43,916
Spinel	...	...	...	...	32,802
Beryl	...	...	...	...	6,300

The condition of the market for coloured stones was on the whole better than in the previous year. Sales were considerably larger, but there was practically no increase in price. There was a good demand in India for practically all qualities of rubies and sapphires. In London and Paris, however, sales were small owing to the general financial depression and heavy taxation, but as always in those markets really fine and valuable specimens were in demand. No large gems of fine quality were found at the Burma Ruby mines. In the same locality there was a still further falling off in the number of "native miners" who pay license fees. The number was 7,435, as compared with 12,559 and 29,843 in the two preceding years.

**GOLD.**

The output of gold decreased by 25.92 per cent. The quantity produced was 10,108 ounces, as compared with 13,645 ounces in 1920. At the single producing mine in the Anantapur gold field, Madras, the Company has given twelve months' notice of the relinquishment of their mining rights.

**COPPER ORE.**

The output of copper ore was 32,560 tons, as compared with 28,167 tons in 1920, the increase being 15.60 per cent. The whole of this came from a single mine in the Singhbhum District. A total of 833 tons of refined copper were produced, the production in 1920 having been 512 tons. The low production of copper was due partly to mechanical troubles and partly to shortage of coke consequent on labour troubles in the coalfields. In addition to the copper produced from the local ore 310 tons of copper were produced from matte shipped from South Africa. The high freight rates, however, made this business unprofitable. The average price obtained was about Rs. 1,150 per ton f. o. r., or rather less than in the previous year.

**IRON ORE.**

The production of iron ore increased from 148,472 tons to 286,190 tons, an increase of 92.76 per cent. The greater portion of the increase came from a new mine in the Singhbhum District which has not yet been provided with transport facilities. The whole of the ore mined there is lying stacked on the ground pending the completion of a railway to the mine.

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 does not come under the operation of the Indian Mines Act.

**CHROMITE ORE.**

The output of chromite was 27,727 tons, as compared with 23,123 tons in 1920. This is an increase of 19.91 per cent., and the output was a record. 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 limestone, slate, magnesite, bauxite, molybdenite, barytes and ochre, and decreases in steatite, graphite, clay and fuller's earth. A production of 347 tons of apatite was reported.

**Section III.—Accidents.**

During the year 1921, at mines regulated by the Indian Mines Act, 1901, there were 232 fatal accidents, being an increase of 55 on the number which occurred in 1920, and an increase of 41 on the average number in the preceding five years.

These accidents involved the loss of 293 lives, or 68 more than in 1920. Of these persons 236 were males and 57 females. In three separate accidents the number of lives lost was 11, 5 and 5, respectively. In two cases 4 lives, in ten cases 3 lives, and in seventeen cases 2 lives were lost.

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

Causes.	Number of accident.	Percentage of total number of accident.
Misadventure . . . . .	124	53·5
Fault of deceased . . . . .	65	28
Fault of fellow-workmen . . . . .	14	6
Fault of subordinate officials . . . . .	7	3
Fault of management . . . . .	17	7·3
Faulty material . . . . .	5	2·2
TOTAL .	232	100

The improvement in respect of accidents from falls of roof and sides was not maintained. There were 136 such accidents, as compared with 72 in 1920 and 128 in 1919. About one-third of them were due to persons working in prohibited places and as a rule the victims had deliberately broken down or passed through a fence. Many of these accidents would have been prevented by the exercise of more vigilance by the supervising staff. In some cases the supervising staff was insufficient in number. Five of the accidents, causing fourteen deaths, were the result of general collapses of underground workings. To some extent the increase in this class of accident was due to the great extension of quarrying operations in the coal fields. No less than twenty fatal accidents occurred in quarries.

There were fewer accidents in shafts. The number was 17, as compared with 29 in the previous year. Two of these accidents were due to the breaking of winding ropes. One was caused by the failure of a detaching hook, and another by the breaking of a link at the time of an overwind.

Accidents on haulage roads again increased. There were 30 such accidents, as compared with 16 in 1920.

There were four fatal explosions of firedamp causing fifteen deaths. One of these took place in a shaft and caused the death of eleven persons (see page 8). Two were due to the ignition of small accumulations of firedamp in un-ventilated galleries.

The number of accidents from explosives increased from 9 in the previous year to 14 in 1921. Twenty lives were lost. Most of these accidents were due to carelessness in the handling and use of gunpowder. In two cases deceased were drying gunpowder over an open fire.

There were three accidents caused by electricity. In one case two men operating an electric coal-cutter were electrocuted. The other two accidents were due to persons climbing up standards carrying electrical transmission wires.

The death rate per thousand persons employed was 1·17, while that of the preceding five years was 1·05. At coal mines only these figures were 1·35 and 1·14, and at mines other than coal 0·61 and 0·91. At coal mines in the United Kingdom during the ten years ending with and including 1919 the average death rate per thousand persons employed underground was 1·46, as compared with 1·74 for Indian coal mines.

The death rate per million tons raised at coal mines was 13·99, while that of the preceding five years was 10·40. At coal mines in the United Kingdom during the ten years ending with and including 1918 the death rate per million tons raised was 5·18.

Deaths occurring in each class of mines were as follows:—257 in coal mines, 7 in wolfram mines, 5 in mica mines, 4 in tin mines, 5 in silver-lead mines, 5 in copper mines, 4 in mangarese mines, 2 in limestone mines, 2 in ruby mines, one in a gold mine and one in an iron mine.

Fifteen persons lost their lives by explosions of gas, 81 by falls of roof, 91 by falls of side, 22 in shafts, 20 by explosives, 32 by haulage, 12 by other accidents underground, and 20 on the surface.

A list of these accidents appears in Appendix II, Table I. In addition to these there were 37 other accidents causing the death of 37 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. Details of certain non-fatal accidents are also given. The numbers refer to the numbers in the Appendix.

#### EXPLOSIONS OF FIREDAMP.

##### *No. 2.—The Eastern Coal Company, Limited's Amlabad coal mine.*

Ignitions of small quantities of firedamp in sinking shafts have occurred from time to time in the coalfields of India, but they have been harmless. In this case, however, an explosion of firedamp occurred in a sinking shaft, and eleven men who were at work at the bottom of the shaft were so severely burned that they all died within two days.

Explosive gas is of rare occurrence in the Barakar stage of the coal bearing rocks in the Jharia coalfield, but it was met with in No. 1 shaft Amlabad at a depth of 181 feet, and safety lamps were sent to the colliery. Subsequently there was an emission of gas in No. 2 shaft, 166 feet deep. A sample of this gas was collected and sent to Calcutta for analysis. The report of the analyst was that the gas was non-explosive, and that it differed from ordinary air only in respect of a higher percentage (1·4 per cent) of carbon dioxide.

Work in Nos. 1 and 2 pits was discontinued owing to water trouble, and the sinking of No. 3 pit continued. At a depth of 145 feet a coal seam, 3 feet in thickness, was passed through, and a small quantity of explosive gas was emitted. The gas bubbled through the water, and the bubbles could be ignited as they came to the surface. After two days the emission ceased, and the shaft was sunk through the seam to a depth of 152 feet. For a few days after the finding of the gas inspections with safety lamps were made, but the presence of explosive gas was not again detected.

On 28th February, *i.e.*, ten days after gas was first detected at No. 3 pit, the morning shift of sinkers descended No. 3 pit at 7-30 A.M. Several inspections were made during the shift by the head sinking-in-chargeman and by the shift chargeman who found everything as usual and in proper order. About 10-30 A.M. thirteen shots loaded with gelignite were fired. Afterwards the cock of the 3 inch air pipe was opened, and compressed air permitted to discharge into the bottom of the shaft so as to dissipate the fumes. Rather more than an hour later the chargeman and the blaster made an inspection, and, everything being found safe, the sinkers descended and resumed the work of loading the broken rock into the bucket. Work proceeded as usual, and seven buckets filled with stone were raised. The seventh bucket had been landed on the sinking trolley, and the trolley had been pushed over the shaft. Two men were standing on the trolley and unhooking the chains from the bucket when an explosion took place in the bottom of the shaft, and a rush of air and smoke or dust was emitted from the top of the shaft. The force of the explosion was sufficient to lift the sinking trolley a short distance into the air and to displace the massive timber frame carrying the trolley and its rails. Except for this displacement and the derailment of the front wheels of the trolley no material damage was done. The empty bucket was speedily lowered into the shaft, and the men raised to surface. All were suffering from extensive burns. They received prompt medical attention and were accommodated in an unoccupied

bungalow close by. None of them, however, survived longer than fifty-four hours. From statements made by the victims it appears that the explosion was caused by one of the deceased who struck a match to light a cigarette.

Three days later when the official inquiry was held there was about three feet of water in the bottom of the shaft. Bubbles of gas were rising to the surface in two or three places, but the quantity of gas was small. The flame of a safety lamp held over the stream of bubbles was unaffected. It seemed unlikely that the quantity of gas then being emitted would be sufficient to cause an explosion. It may be presumed, therefore, that the blasting done a few hours before the explosion took place had released an accumulation of gas in the strata, and that most of this gas had since been discharged. After the blasting no lights were taken into the shaft, as the light of day fully illuminated the bottom of the shaft. If lights had been in use it is probable that the gas would have ignited quietly and burnt without explosive effect. In the event, however, the gas continued to mix with the air until the proportion of gas became about six per cent. when ignition with little explosive violence would take place.

Although ignitions of small quantities of gas in sinking shafts are not uncommon in India, and are usually harmless, yet it is usual to use safety lamps where gas has actually been encountered or where a seam of coal from which gas may be emitted is about to be pierced. In this case although safety lamps had been provided the manager omitted to take that precaution, but it was not considered that his neglect amounted to criminal negligence or merited a prosecution for violation of General Rule 15.

After the accident instructions were issued that all three sinking shafts were to be regarded as gassy mines, and that no naked lights were to be allowed in them.

*No. 3.—The New Beerbhumi Coal Company, Limited's Victoria coal mine.*

This accident, resulting in the death of one person, was caused through a miner entering an inadequately ventilated gallery with an open lamp and igniting an accumulation of firedamp. A similar but non-fatal accident occurred at the same mine in 1915. Safety lamps were brought into use until the year 1917, when they were withdrawn, as no trace of firedamp had been found for several years. A weekly inspection of the workings with a safety lamp was, however, carried out as a precautionary measure.

The inquiry into the cause of this accident revealed that it would have been a simple matter to have directed a good current of air into the face of the gallery in which the explosion occurred. Further that although the underground overman and sirdar had been instructed how to test for gas neither of them had ever actually seen a gas cap in a safety lamp.

The dangerous practice of driving galleries ahead of the ventilation has frequently been remarked upon in the past, and it is deplorable that small explosions due to this cause should continue to occur practically every year. Safety lamps are now used at this mine.

FALLS OF ROOF.

*No. 5.—The Burrakur Coal Company, Limited's Katras coal mine.*

Four miners went to work in a coal mine before the sirdar had made the statutory inspection of the mine, as required by the rules. One of them was killed by a fall of roof. This accident might have been avoided if the deceased and his companions had waited until the place had been examined by the official appointed for the purpose. It would probably have been prevented if the entrance to the mine had been provided with a locked gate, as is required by the rules. For the former offence the three survivors were convicted and sentenced to two weeks' rigorous imprisonment, and for the latter offence the manager was convicted and fined.

It was for the prevention of accidents such as this that the rules requiring locked gates at mine entrances were made, and it is to be hoped that managers will take warning from this case, and will see that gates are provided, kept in proper repair, and regularly used.

*No. 9.—The Raneegunge Coal Association, Limited's Kustore South coal mine.*

Pillars were being extracted at this mine when a premature collapse took place, and three miners were entombed. As a thickness of not less than thirty feet of rock had fallen the bodies could not be recovered. The coal seam is No. 15 seam, 20 feet in thickness. In the first working pillars, 45 feet square, had been formed by driving galleries, 15 feet in width. The extraction of these pillars was in progress. The method adopted was to divide a pillar into four equal portions or "stooks" by splitting it in two directions, and to take out the "stooks" one by one in rotation. An area, about 300 feet by 200 feet, had been dispillared successfully. The position at the time when the accident took place is shown in plan A. A pillar had been split forming four "stooks" in the usual way. The first "stook" (C) had been extracted and the timber withdrawn. The second "stook" (D) had also been extracted, but the timber had not been withdrawn. The third "stook" (B) was then attacked, but, owing to a "fault" which passed through it, the manager decided to leave it until the fourth "stook" (A) had been extracted. The extraction of the fourth "stook" had proceeded until it had been reduced to dimensions approximately 11 feet  $\times$  7 feet when collapse took place with so little warning that three of the eight miners at work were unable to make their escape and were buried. The fall measured 60 feet  $\times$  47 feet, and previous to the collapse it was supported by the "stook," 11 feet  $\times$  7 feet, and by props the number of which was variously stated to be not less than 26 and not more than 40.

The Inspecting officer who inquired into the circumstances of the accident was of opinion that the whole area was insufficiently timbered. He calculated that over a length of about 35 feet the props must have been more than 10 feet apart.

Successful extraction of pillars by this method requires that the splits should be kept as narrow as possible, that the timbering should be sufficient and regularly distributed, and that as the extraction of coal proceeds the timber should be withdrawn in small sections so that there is never any large area of roof standing on timber. Had these principles been followed the accident would probably not have occurred.

Accidents such as these would be fewer if at every mine where pillars are being extracted the manager would lay down definite rules as to the maximum permissible width of splits, the distance apart at which props should be set, and the maximum area of roof which may be supported by props at one time. In the new draft rules for coal mines it is proposed that managers in consultation with the Inspector of Mines shall draw up such rules on these lines as may be appropriate for the particular seam concerned.

*No. 37.—His Highness the Maharaja of Kassimbazar's Ekra coal mine.*

At this mine pillars in a coal seam, 22 feet in thickness, were being extracted. In the major portion of the workings the full thickness of the coal had been cut in forming the pillars, but in the district where the accident took place the galleries had been driven in the lower half of the seam. The method of extracting the pillars was to take out the lower portion of the seam and to support the coal, 10 feet in thickness, left in the roof on props. After the lower portion of a pillar had been extracted the timbers were withdrawn, and when the roof coal had fallen it was loaded up, and props set under the stone roof as soon as the removal of the fallen coal would permit.

In this case props had been withdrawn some three weeks before, but the roof coal had not fallen. Access to the place was prevented by means of a single wire fence. One of the deceased who had been cutting floor coal near by passed through the fence and began to load up fallen coal. Whilst so



engaged he was struck down by a fall of coal. Two other miners ran to his rescue, but whilst they were extricating him a further fall of coal took place and killed all three men. The recovery of the bodies was a dangerous operation, and was interrupted by the fall of some 30 to 40 tons of coal.

A "dropping" method of extracting pillars has been in operation at the East Indian Railway Company's Giridih collieries with great success for many years. The conditions there are, however, entirely exceptional. The coal is of a homogeneous character and is not traversed by pronounced joints. The roof consists of a great thickness of massive sandstones, and it does not collapse until a large area has been dispillared. Large pillars (88 feet square) are formed by galleries driven in the lower portion of the seam. The roof coal is then extracted over an area of one quarter of a pillar, and this is done by making narrow vertical cuts which extend up to the roof and separate the roof coal to be dropped from the remainder of the pillar. When this has been done the "stooks" supporting the roof coal are reduced as far as possible, and subsequently blown out by charges of high explosive, permitting the roof coal to fall. The coal is then loaded out, and occasional props are set to the roof to give warning of any bending of the roof which may take place. The roof is exceptionally strong and invariably gives ample warning before collapse takes place. The conditions, however, are exceptional and this method of working cannot be adopted with safety elsewhere.

In this particular case no vertical cut had been made so as to separate the roof coal from the pillars of coal remaining. The edges of the pillars were found to be very ragged with cornices of roof coal projecting from 10 to 30 feet from the pillars. It was agreed to discontinue this method of working, and to cut up the galleries to the full height of the seam before attacking any new pillars.

*No. 47.—The Katras Jharia Coal Company, Limited's Seebpur coal mine.*

From time to time in previous Annual Reports adverse comments have been made on the practice of carrying roof coal on timber in pillar cutting operations. In this case a large area of roof coal, 3 feet thick, was being carried on vertical props. An attempt was being made to cut down a portion of this roof coal, and this disturbed the equilibrium of the layer, and, there being nothing to prevent horizontal movement, a mass of some 40 tons of coal was released from between two parallel "slips," and fell causing the death of four men.

After the accident the agent of the colliery agreed that where a large area of roof coal is standing on timber it is dangerous to cut away any portion of it. He issued instructions that where roof coal is to be got in an area where pillars are being extracted all such roof coal shall be removed at least one pillar in advance of the pillar under extraction. Agents and managers of coal mines where the conditions are similar will be well advised to issue similar instruction on these lines to their subordinates.

FALLS OF SIDE.

*No. 73.—The East Bagdiggi Colliery Company's East Bagdiggi coal mine.*

This accident is a striking example of the reckless disregard for human lives displayed by certain colliery owners in the working of coal quarries. A coal seam, 23 feet in thickness, dipping at an angle of 60° was being quarried. In a quarry, 34 feet in depth, twelve persons were engaged in cutting and carrying coal at the foot of an overhanging mass of roof stone and coal, when a fall of stone and coal, 33 feet long by 6 feet high and 1 to 3 feet thick, suddenly occurred killing five of them instantly. At the time of the official inquiry it was found that the whole of the quarry had been worked in a most dangerous manner, the coal having been excavated so as to leave masses of overburden overhanging. This overburden consists of shale with numerous smooth joints from which masses fall away readily. In spite of this the working of the coal had been carried to a depth of from 12 to 16 feet below the overhang.

Criminal proceedings were instituted against the owner, agent, manager and contractor. The owner was convicted and fined Rs. 500, the agent was convicted and sentenced to three months' rigorous imprisonment and a fine of Rs. 500, the manager was convicted and fined Rs. 10, and the contractor was convicted and fined Rs. 50. The agent appealed, but his appeal failed, and the Judge who heard the appeal expressed the opinion that the penalties were insufficient. If the case had been taken under the Indian Penal Code the sentence might have been imprisonment for two years. The Magistrate who tried the case has expressed the opinion that the penalties under the Indian Mines Act are too light. The advisability of rendering the penalties under the Indian Mines Act more drastic is under consideration.

There has been a great increase in the quarrying of coal during the last year or so, and a great deal of the time of the officers of the Mines Department has been taken up in inspecting such quarries. Numerous accidents have taken place in quarries, and in many of these cases the management alleged that the deceased were to blame as they had been robbing coal in parts of the quarries which had been fenced off as they had become dangerous. Such a defence is suspicious to a degree. Quarries should be worked in such a way that it is only very exceptionally necessary to fence off portions of them on account of danger. The sides of quarries should be stepped or sloped in such a way that falls of overburden cannot occur. In the new draft rules for coal mines it is proposed to strengthen the rules regulating the working of quarries.

It is to be hoped that the severe penalties imposed in this case will act as a warning to others. The workers in quarries are frequently both ignorant and unintelligent, and it is criminal to expose them to dangers which they do not properly appreciate.

*Nos. 87 and 119.—The Bhulanbararee Coal Company, Limited's Bhulanbararee coal mine.*

The great scarcity of coal and the preference of labourers for working in quarries rather than underground has led to the quarrying of pillars of coal which had originally been formed by underground mining. At this mine pillars of coal in a thick and highly inclined coal seam were being quarried. Whilst a miner was cutting the coal forming the roof of an old gallery the roof collapsed. He was precipitated into the gallery below and killed instantly by the coal which fell with him. Five months later two coal carriers were carrying coal in an adjacent quarry when the pathway subsided into an old gallery below. They also were killed.

The danger to persons employed in such workings is great, particularly where the coal seam is highly inclined. Care should be taken to locate the position of the galleries and to remove the partitions between such galleries and the quarry. In many cases the only safe way is to pack the galleries with debris before commencing quarrying operations. In this particular case the agent of the mine undertook that this should be done in future.

*No. 95.—The Rancegunge Coal Association, Limited's Alkusa South coal mine.*

Three persons were sleeping underground in a mine when a mass of side coal, weighing some 14 tons, fell upon them, killing them instantly. The place of accident was adjacent to an area where pillar extraction was in progress. In such a situation roof "weight" on the pillars adjacent to the goaf is liable to cause masses of coal which appear to be sound to become detached and fall from the pillars, and this is what appears to have occurred in this case.

The practice of sleeping underground in a mine is only too common, although it is usually forbidden and was expressly so forbidden in this case. Officials should exercise greater vigilance in discouraging the practice. At the present time it is not unusual for coal miners to work for some hours, eat and then sleep, usually on the surface, and then to return for another spell of work. The institution of regular shifts would discourage this, and many managers would welcome the statutory regulation of hours of labour. They are at present deterred from regulating hours by the fact that miners would probably

resent the enforcement of the regulations and leave their mines for other mines where such regulations were not in force. Were the hours of labour regulated many difficulties in respect of supervision would disappear, and the efficiency of inspection by officials would increase.

#### IN SHAFTS (MISCELLANEOUS).

##### *No. 155.—The Burrakur Coal Company, Limited's Katras coal mine.*

This accident forms a striking example of the lack of care and arrangement in fixing machinery which is often displayed at mines in India. Five sinkers were standing on a scaffold suspended in a shaft from a winch at surface, and were engaged in dressing the sides of the shaft. Stone from the side of the shaft fell upon the scaffold, and its weight was sufficient to carry away the winch at the surface, and to cause the scaffold to descend some 20 to 30 feet. The winch swung across to the top of the shaft and displaced some heavy fencing planks, and these fell down the shaft, killing three of the men and injuring another. The arrangement of the machinery and the manner in which the accident occurred is illustrated by plan B.

At the inquiry it was disclosed that the winch was not secured in any way to the masonry pillar on which it rested, but was merely held in position there by its own weight and the weight of a platform loaded with stone which rested on the wooden frame to which the winch was secured. The total weight was about  $8\frac{1}{2}$  tons, whereas the dead weight of the scaffold, chains, rope, bucket and men was about  $1\frac{3}{4}$  tons. In the event of heavy stones falling on to the scaffold in the course of the operations of dressing the sides of the shaft the live load would be very much greater. No allowance had, however, been made for this fact. In the course of the inquiry it was ascertained by experiment that a weight of  $3\frac{1}{2}$  tons was sufficient to drag the winch from its seat.

Mr. F. L. G. Simpson, Inspector of Mines, No. 1 Circle, after a full inquiry into the circumstances of the accident was of opinion that the accident was due to the absence of proper arrangement for holding down the winch on its foundation. He considered that it was a grave error of judgment not to anchor the winch either by pulleys let into the foundation or from ground posts or in some other suitable manner. As no breach of rules under the Indian Mines Act was involved, and as it was thought that the error of judgment which led to the accident would not in law be considered to be a rash and negligent act criminal proceedings were not instituted.

After the accident the winch was replaced by two winches at ground level, and these were properly secured by weights and ground pins in such a position that the angle over the guide pulleys was increased. The agent of the colliery sent to the managers of all the collieries controlled by him instructions that in future all winches used for raising, lowering or supporting persons should be fixed on sound masonry foundations and secured by bolts of ample strength.

#### HAULAGE.

##### *No. 177.—The Pandaveswar Colliery, Limited's Pandaveswar coal mine.*

At Indian mines there are many thousands of miles of road on which trams are propelled by hand. Accidents on these roads, due to the trams running wild down slight grades, frequently occur. In most cases these are due to omission to "sprag" the wheels of the trams.

In this case a tram which was being loaded with coal was standing on a tram line with a gradient of 1 in 40. The "locker" or "sprag" in the wheel of the tub slipped out, and the tub ran forward over a woman who was sitting on the line only a few feet away. The woman sustained fatal injuries.

At the inquiry it was found that the "sprag" used consisted of a piece of iron 1 inch in diameter and 18 inches in length. It is a simple

matter for a "sprag" of this kind to slip out of the spokes of a wheel. A "sprag" should be so constructed that it is impossible for it to slip through the spokes. This can easily be done by turning over one end of the bar so as to form a loop too large to pass between the spokes. Another plan is to drill a hole through the end of the "sprag" and pass through it an iron ring larger than the space between the spokes of the wheels. The use of wooden "sprags" is to be deprecated. They readily slip out from between the spokes, and, moreover, they frequently break, and are thus liable to bring about accidents.

*Nos. 181 and 188.—The Samla Kendra Collieries, Limited's Chatrisgouda coal mine.*

These two accidents occurred on the same haulage incline, and were due to the carelessness of the banksman and sirdar, and to the inadequacy of the precautions taken to prevent runaways. In both instances several tubs ran away down the incline from the surface, demolished the stop-block *en route*, and struck and killed a man. The sirdar and banksman, through whose carelessness the first accident took place, were prosecuted, but the former was held not to have been responsible, and the latter absconded.

At the time when these accidents took place there were two stop-blocks at the top of the incline and another some 300 feet below the top. It is bad practice to multiply safeguards of this kind. A frequent result of providing more than one safeguard is that both are unused, *i.e.*, stop-blocks are left open permanently and points fixed in position for the inclines. It is sufficient if, in addition to the stop-block at the top of the incline, runaway points are provided and kept in good order. Such points should be loaded for the turn out, and operated by a wire or rod from the top of the slope, and a standing order should be issued that the points should not be set for the incline until after the train is in motion and the leading tub is approaching the points. Such is now being done at all the collieries controlled by the agent of the colliery at which these accidents occurred.

*No. 189. The Jainty Central Collieries, Limited's Jainty Central coal mine.*

This is another instance of the danger of sleeping underground in a mine. Whilst some thirteen persons were sleeping in a manhole at the side of an underground haulage slope some tubs ran wild from the top of the incline. Being awakened by the noise of the tubs coming down the incline some of these persons ran out of the manhole and were struck by the tubs. One woman was killed and three other persons were injured.

For the running away of the tubs the banksman was at fault. In the first place he omitted to attach one of the coupling chains. His more serious mistake, however, was to close the runaway points before opening the stop-block, thus destroying the utility of the device provided to prevent a runaway in the event of a missed coupling. It appears that he was accustomed to sprag the empty train a short distance above the stop-block, and then to close the runaway points and secure the operating handle in the closed position by means of a wooden wedge. He then opened the stop-block and started the tubs in motion by removing the "sprags." The proper procedure would have been to lower the tubs against the stop-block, couple them up, signal to the engineman to draw up the rope until all the coupling chains were tight and the leading tub drawn back sufficiently far for the stop-block to be opened. The train should then have been lowered down the incline, and the runaway points closed by means of the lever just before the train reached it.

For his neglect criminal proceedings were instituted against the banksman, but he absconded and his whereabouts could not be ascertained. He was not, however, solely to blame. If the mine officials had been fully alive to their duties and responsibilities, they would have insisted on the proper use of the safety appliances provided to prevent accidents of this class.

## MISCELLANEOUS ON SURFACE.

*No. 225.—Chamanlal Mangaldass and Company's Kendwadih coal mine.*

At this colliery it became necessary to erect a vertical boiler in a certain position. The manager obtained the loan of a small crab winch from a neighbouring colliery. This winch was in very poor repair, as there was neither a "pawl" nor a brake on it, and some of the teeth of its gearing were broken. The handles, moreover, were makeshifts and longer than the original handles. Whilst the boiler was being lifted into position the winch was manned by seven men, and one of the handles broke causing the other handle to whirl round and strike one of the men on the head, fracturing his skull.

According to the evidence given at the inquiry both the manager and the mistry knew of the bad condition of the winch. Both stated that they told the contractor and his men not to use that winch but another larger winch for lifting the boiler. Neither of them, however, took any steps to ensure that the larger winch was used. The contractor, however, cannot be held blameless for his experience should have taught him that he was running a grave risk when he put seven men on the handles of a broken down winch. As responsibility in this case was divided and, moreover, no breach of rules was involved criminal proceedings were not instituted. The occurrence of a preventable accident such as this is, however, discreditable to all concerned.

## EXPLOSIVES.

(Non-fatal accident.)

*The Tata Iron & Steel Company, Limited's Sijua coal mine.*

There are only two recorded cases of explosions of coal dust in Indian mines. One of these occurred in the Raniganj coalfield in 1913 and caused the death of 27 persons. The other took place in 1908 at a colliery in Baluchistan where 20 lives were lost. Both were considered to have been initiated by small explosions of gas.

This case, however, is one of the ignition of coal dust by blasting operations. It caused serious injury by burning to three men. The place of accident was a narrow heading partly in coal and partly in stone which was being driven in the vicinity of a new shaft. The heading was 10 feet wide and 6 feet high. It had been driven to a distance of 90 feet from the shaft, and in that distance there were two right angle bends. The stone which came from the driving had been packed along the side of the road so that the available width had been reduced to from 3 to 5 feet. The position of matters at the time when the accident took place is illustrated by plan C.

In the lower portion of the face of the gallery, and within an area, 7 feet long by 2½ feet high, ten holes had been drilled in the coal. These holes were charged with 5 lbs. of dynamite, and the charges were subsequently exploded, producing flame which traversed the two right angle bends and burnt three men who were seated near the shaft at a distance of 90 feet from the face. These men stated that half a minute after the explosion of the shots a thick cloud of dust and smoke came out and was followed by a red flame which went back, but returned after a few seconds and then went back and died out. The previous blasting which had been done had produced a quantity of very fine coal dust, and this had settled in the interstices between the stones packed in the gallery. It seems probable that the first shots which exploded raised a cloud of fine coal dust, and that this was ignited by the flame from other shots which were probably blown out.

The firing of a number of heavy charges of high explosive in such close proximity to one another, and in a place which was dry and dusty is a practice to be avoided. Had the workings been extensive and containing deposits of fine coal dust such as is commonly the case in the vicinity of haulage roads, the effects might have been very serious.

## 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 and manager of Samanta Brothers' Egarcour coal mine were prosecuted under Rules 1, 7 and 19. They were each fined Rs. 15, in default one day's simple imprisonment.

The owners (three) and manager of the West Ghusick Coal Company's West Ghusick coal mine were prosecuted under Rule 19. They were each fined Rs. 3.

The owners (two) and manager of the West Dobalia Coal Company's West Ghusick coal mine were prosecuted under Rules 2 (g), 4 and 20 for not appointing a qualified person to examine appliances by which persons ascended and descended the mine, for not causing an examination to be made of parts of the mine through which persons had to pass, and for not fencing the moving parts of a winding engine. The owners were fined Rs. 60 each. The case against the manager was dropped as he was reported to have died.

The owners and manager of Babu J. C. Dutt's Chapapur coal mine were prosecuted under Rules 3, 4 and 19. They were each fined Rs. 15, in default one day's simple imprisonment.

The owner of Babu G. L. Mukherjee's Pabargora coal mine was prosecuted under Rules 3, 4 and 19 for not causing an inspection to be made of working places in the mine, for not keeping working places in the mine secure and for not fencing the top of a quarry and disused shafts. He was fined Rs. 40.

The owner and manager of B. P. Singh's Kalipahari coal mine were prosecuted under Rules 2 (g) and 4 for not providing an indicator on the winding engine and not having working places in the mine inspected daily. They were each fined Rs. 40.

The owners and manager of the Rampur Colliery, Limited's Rampur coal mine were prosecuted under Rules 3, 4 and 19, for not keeping travelling roads in the mine in a safe condition, for not having working places in the mine inspected daily and for inadequately fencing old workings. They were fined Rs. 25 and Rs. 10, respectively.

The owner and manager of Babu B. B. Ghosh's Sibdaspur coal mine were prosecuted under Rule 19 for not fencing the quarries. The owner was acquitted. The manager was fined Rs. 20.

The manager of Babu S. N. Bose's Bandarchua coal mine was prosecuted under Rule 3 for not keeping the working places in a quarry secure. He was fined Rs. 10, in default three days' simple imprisonment.

The manager of the Burrakur Coal Company, Limited's Katras colliery was prosecuted under Rule 5 of Bihar and Orissa Government Notification No. 11761-M., dated the 23rd August 1918, for not providing a gate at an entrance to the mine. He was fined Rs. 10.

The owners, agent and manager of Babu Shewramdas Ramniranjandas' Laxmi coal mine were prosecuted under Rules 3 and 4 for not keeping the roof and sides safe, for not appointing a competent person to make a daily inspection of working places in the mine and for not maintaining a daily report book. The owners were acquitted. The agent and manager were fined Rs. 10 and Rs. 5, respectively.

The agent and manager of Agarwalla Brothers' Bokharo-Jharia coal mine were prosecuted under Rule 3 for not keeping secure the sides of working places in the quarry. The proceedings were dropped. The mine-owner donated a sum of Rs. 400 to local hospitals.

The owner, agent, manager and contractor of the East Bagdiggi Coal Company's East Bagdiggi coal mine were prosecuted under Rule 3, for not keeping the side of a quarry secure. The owner was fined Rs. 500, in default one month's rigorous imprisonment. The agent was sentenced to three

months' rigorous imprisonment and also fined Rs. 500, in default a further one month's rigorous imprisonment. The manager was fined Rs. 10, in default one month's rigorous imprisonment. The contractor was fined Rs. 50, in default one month's rigorous imprisonment.

The owner and manager of Ramchandra Shewdanmal's Dhansar coal mine were prosecuted under Rules 3 and 19 and Special Rule 22, for not keeping working places in the mine safe, for not fencing the quarry and for not appointing a competent person to inspect working places in the mine. The owner was fined Rs. 150, in default fourteen days' rigorous imprisonment, and the manager Rs. 50, in default ten days' rigorous imprisonment.

The owner, agent and manager of Babu Nafar Chandra Pal Chowdhury's Budiadih coal mine were prosecuted under Rules 1, 3 and 14, for employing persons in a mine without providing a second outlet, for not keeping the roof in the mine secure and for not providing adequate ventilation in the mine. The manager of the mine absconded and the agent was reported to have died. The owner was convicted and fined Rs. 75 on each count, in default six weeks' simple imprisonment.

The owner, agent and manager of O. M. & Company's Kendwadih coal mine were prosecuted under Rule 3 for not keeping working places in the mine safe. They were fined Rs. 200 each.

The manager, under-manager and sirdar of Jagmohan Ramjibon Marwari's Satpokuria-Kristoganj coal mine were prosecuted as follows:— The manager, under Rule 8 of Government of India Notification No. 11793-103, dated the 30th December 1908, and Special Rules 22 and 27. The under-manager under Rule 8 of Notification No. 11793-103, dated the 30th December 1908, and Special Rule 32, and the sirdar under Rule 4 and Special Rule 37. The manager was fined Rs. 30, in default 30 days' simple imprisonment. The under-manager was acquitted and the case against the sirdar was dropped as he was not traceable.

The owner and manager of the Begunia Coal Concern, Limited's Khudika coal mine were prosecuted under Rules 1 and 20 and Rule 3 of Bengal Government Notification No. 3970-Com., dated the 28th August 1918, for not providing a second outlet to the mine, for not fencing exposed and dangerous parts of a haulage engine, and for not providing gates and keeping them in repair at the entrances of inclines. The owners were fined Rs. 20, in default thirty days' simple imprisonment. The manager was acquitted.

The agent and manager of the East Barari Coal Company's Jhagora coal mine were prosecuted under Rule 19 for failure to fence the quarry properly. They were each fined Rs. 10.

The owner of Babu J. P. Lalla's East Mandra coal mine was prosecuted under Rule 12, for failure to submit a plan of the abandoned workings of the mine. He was fined Rs. 10.

The owner of Pir Mohan Lal's Muraidih coal mine was prosecuted under Section 16 of the Act, for failure to submit a notice of the opening of the mine. He was acquitted.

The owner of the Central Muraidih Coal Company's Central Muraidih coal mine was prosecuted under Section 16 of the Act, for failure to submit a notice of the opening of the mine. He was acquitted.

A shot-firer employed at the Pench Valley Coal Company, Limited's Barkui colliery was prosecuted under Section 304(a), Indian Penal Code. He was convicted and sentenced to two years' rigorous imprisonment.

Sixteen prosecutions were instituted for non-submission of annual returns for the year 1920 on the prescribed date. Two cases are pending as the accused have not been traced. In the other fourteen cases fines aggregating Rs. 315 were imposed.

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

A time-keeper of the Joba Coal Company, Limited's Joba coal mine prosecuted a fireman, under Rule 4, for absenting himself from work without

previously obtaining permission. The case was withdrawn as the accused was not traceable.

The agent of the Samla and Kendra Collicries, Limited's Samla and Kendra coal mine prosecuted a sirdar and hookman, under Rules 5 and 4, respectively. The sirdar could not be traced. The hookman was acquitted.

The agent of the Bengal Nagpur Coal Company, Limited's Bhuggutdih coal mine prosecuted three trollymen under Rules 5, 77 and 78. The accused could not be traced. The case is pending.

The manager of the East Indian Coal Company, Limited's Barari coal mine prosecuted a miner's sirdar, under Rule 21, for robbing coal from a pillar. The accused absconded and could not be traced.

The manager of the Sitarampur Coal Company's Narsamuda coal mine prosecuted a sirdar and a shot-firer under Rules 4, 5, 84 and 85. The accused could not be traced. The case was dropped.

The manager of the Baraboni Coal Concern, Limited's Chotanuni coal mine prosecuted an onsetter, under Section 337, Indian Penal Code, and Rule 5, for neglecting to sprag the wheel of a tub whereby an accident resulted. He was acquitted.

The manager of the Equitable Coal Company, Limited's Dishergarh coal mine prosecuted a pump khalassi under Rule 5, for allowing an electric motor to take fire and thus endangering the safety of persons in the mine. He was fined Rs. 10, in default two weeks' simple imprisonment.

The manager of Babu N. M. Chowdhury's Niluripatra coal mine prosecuted two miners under Rules 5 and 18. The accused absconded and could not be traced.

The manager of the Burrakar Coal Company, Limited's Katras coal mine prosecuted three miners, under Rules 5, 7 and 15, for entering the mine at night without permission. They were convicted and sentenced to two weeks' rigorous imprisonment.

The manager of Villiers Limited's Jainty Central coal mine prosecuted a banksman, under Rule 78, for neglect to properly couple a train of tubs before removing the stop-block. The accused absconded and could not be traced.

One permit granted to a manager of a small mine was cancelled during the year on account of mismanagement disclosed by inspection.

#### ADDITIONS TO THE ACT.

During the year Special Rules, under Section 21 of the Act, were established at 46 coal mines and one manganese mine. Special Rules have now been established at 607 coal mines and 40 manganese mines.

### Section V.—General Remarks.

#### HEALTH AND SANITATION.

The Asansol Mines Board of Health held 9 ordinary meetings and 8 special meetings during the year. Dr. J. W. Tomb, Chief Sanitary Officer, reports that there were 1,250 cases of cholera with 617 deaths and 74 cases of small-pox with 10 deaths, as compared with 368 cases of cholera with 170 deaths, and 795 cases of small-pox with 65 deaths during the previous year. The number of deaths from influenza recorded was 392, as against 748 during the year 1920. On the whole the general health of the mining community was good.

The Board's anti-malarial staff continued their investigations throughout the year. Through the kindness of the Provincial Director of Fisheries larvacidal fish have been introduced into certain tanks in the Mining Settlement, and it is hoped that it may be possible to cultivate them successfully in many of the tanks of the Mining Settlement which harbour malaria-bearing mosquito larvæ.



The lectures on sanitation and hygiene in all upper and lower primary village schools in the Mining Settlement were continued, and the Board's primer on "Elementary Hygiene" was distributed to the scholars, free of charge.

The Jharia Mines Board of Health held 15 ordinary meetings and 10 special meetings during the year. Dr. G. W. Thompson was Medical Officer of Health during the whole period.

The area of the Jharia Mining Settlement was extended so as to embrace the whole of the Dhanbad sub-division, including Dhanbad municipality.

The Epidemic Diseases Act remained in force throughout the year, and the Medical Officer of Health continued to be the authority appointed under the Act.

The new Bihar and Orissa Mining Settlement Act became law in August 1920, but up to the end of 1921 the Local Government had not prescribed the rules or approved the bye-laws under the Act.

There were 777 cases of cholera with 314 deaths and 207 cases of small-pox with 3 deaths, as compared with 191 cases of cholera with 58 deaths and 1,363 cases of small-pox with 75 deaths in the previous year. The general health of the mining community was good.

The rainfall in the Jharia coalfield was 41.65 inches, and at the Jharia Water Works near Topchanchi it was 53.77 inches. In the Raniganj coalfield the figures from three reporting centres within a radius of seven miles were 26.51, 41.77 and 63.25 inches, the average being 43.85 inches. In the Giridih coalfield the recorded rainfall was 31.68 inches. The figures for the previous year were 47.85 inches, 72.50 inches, 47.90 inches, and 68.49 inches, respectively.

#### 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 1921, of the fourteen students who appeared at the examination twelve were granted Diplomas; in the junior course twenty-one were enrolled at the beginning of the sessions, fifteen sat for examination, and thirteen qualified for promotion to the senior course. In this latter figure two special students are included. 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 1921 at Dishergarh on the site near the Equitable Coal Company's 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 43, of whom 10 were special survey students.

The Mining Education Advisory Board held four meetings during the year. The mining lecturers appointed by the Board at different centres in the coalfields were Mr. M. R. Read at Dishergarh, Mr. David Jones at Raniganj, Mr. A. Clubb at Jamuria, and Mr. J. McArthur at Jharia and Sijua.

The sessional examination was held in May, the examiners being Mr. F. L. G. Simpson, Inspector of Mines in India, and Mr. J. Thomas, Officiating Professor of Mining, Bengal Engineering College. Of the 57 candidates who qualified to sit for examination 25 presented themselves for examination and 19 were successful. As a result of the examination special mining scholarships, tenable at the Bengal Engineering College, were awarded to Babu Nishi Bhushan Ghosh and Mr. B. T. Morehead.

Babus Rash Behari Mondal and S. N. Bhattacharyya were appointed as mining lecturers in Bengali and Hindi, respectively, and delivered the usual courses of lectures in the Raniganj and Jharia coalfields.

At the commencement of the 1921-22 sessions two full-time appointments were made to the mining lecture staff in the Jharia coalfield, Mr. Griffith Jones, B.Sc., being appointed lecturer and Babu N. N. Sen, assistant lecturer.

A new scheme of instruction comprising a three-year course (see Appendix, page 95) was put into operation. 236 students were enrolled. It is hoped that the new lecture halls at Jharia and Sijua will be ready for occupation by the commencement of the next session.

A similar scheme for an improvement of the mining classes in the Raniganj coalfield has been drawn up, but little progress has so far been made.

Funds for these mining educational schemes are provided by the Governments of Bihar and Orissa and Bengal, but substantial contributions are made by the Indian Mining Association and the Indian Mining Federation.

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

There was no change in the personnel of the Board. Nine meetings were held during the year.

Twenty first class certificates of competency were granted in lieu of British certificates.

At the examinations for colliery managers' certificates of competency held at Dhanbad, on the 14th, 15th and 16th and 21st, 22nd and 23rd February 1921, sixty candidates sat for first class and seventy-seven for second class certificates. Certificates of competency were granted to seventeen first class and six second class candidates.

An examination for colliery managers' second class certificates of competency was held on the 2nd, 3rd and 4th November 1921. One hundred and ninety-seven candidates appeared for examination, of which number forty-seven were successful and were granted certificates.

The examiners for the first class examination in February were Messrs. H. M. Tarlton, J. Wilson and F. L. G. Simpson, Inspector of Mines in India (official examiner and secretary) and for both the second class examinations Messrs. W. Weir, R. Purdy and Mr. F. L. G. Simpson (official examiner and secretary).

The Regulations made by the Board of Examiners were amended at a meeting of the Board on the 23rd February 1921, and the amended regulations were duly published in the official gazettes. These Regulations are reproduced in Appendix IV, Statement No. 7.

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

The Bengal Mining Board held no meetings during the year. All matters referred to the Board were considered by circulation to the members. Such matters were:—(1) Amendments of the rules made under the Bengal Mining Settlements Act, 1912; (2) proposals for the conservation of coal; (3) amendments of the statistical forms to be submitted under the Indian Mines Act, 1901; (4) proposed legislation for the provision of compensation to workmen for injuries received in the course of their employment; and (5) the amendment of the Indian Mines Act, 1901. The non-official members were Messrs. W. Graham and Glen George.

The Bihar and Orissa Mining Board held three meetings during the year. Questions relating to coal conservation, the amendment of the statistical forms to be submitted under the Indian Mines Act, and the amendment of the Indian Mines Act, 1901, were considered by the Board. The non-official members were Messrs. R. G. M. Bathgate and J. Mackie.

The Central Provinces Mining Board held one meeting during the year, and considered business as follows:—(1) Proposed modifications in the conditions of prospecting licenses, and the basis for the grant of certificates of approval; (2) facilities for technical mining education in the Province. The non-official members were Messrs. H. D. Coggan and R. S. Davies.

### MINING AND GEOLOGICAL INSTITUTE OF INDIA.

The total membership at the end of the year, including subscribers, was 320. At the annual meeting and at two ordinary meetings papers were read and discussed. Two visits were paid to coal mines and to the central power station in the Raniganj coalfield, and there was also a geological field excursion. An innovation was the holding of a member's social gathering as a prelude to which an interesting and instructive lecture was delivered by Mr. D. Penman on "Mine Rescue Apparatus." The lecture was illustrated by lantern slides, and safety appliances were exhibited.

Three parts of the Transactions were published.

It was reported that the Subsidence Committee had discontinued its researches, and that the second and final report of the Committee had been prepared and would shortly be published.

A local branch of the Institute has recently been inaugurated in the Central Provinces, with head-quarters at Kamptee.

The Government prize for the best paper contributed during the year was awarded to Mr. R. R. Simpson for his paper on "Notes on a visit to the Burma Ruby Mines." The writer of this paper was also awarded the Institute's gold medal. The silver medal was gained by Dr. G. W. Thompson for his paper entitled "Ankylostomiasis, its cause, effects and prevention," whilst the bronze medal was awarded to Mr. J. Thomas for his paper entitled "Recent developments in lubrication, with special reference to graphite."

### THE ASSOCIATION OF COLLIERY MANAGERS IN INDIA.

The Association has now 200 members. The business considered by the Council during the year included subjects as follows:—

- (a) Two cases in which members had been dismissed by their employers and considered themselves aggrieved;
- (b) Standard agreements;
- (c) Superannuation;
- (d) Coalfields Committee;
- (e) Workmen's compensation;
- (f) Signals in mines;
- (g) Affiliation with the National Association of Colliery Managers in Great Britain. It was reported that the latter had been definitely arranged.

At one of the meetings an interesting paper on "Machine Mining" was read by Messrs. A. Barrowman and W. B. Hanson.

The Association was asked to nominate one of their members for membership of the Jharia Mines Board of Health. Mr. J. A. Oliver, President of the Association, was so nominated, and was subsequently appointed by the Government of Bihar and Orissa as a non-official member of the Board.

### TRUE MERIDIAN LINES IN THE COALFIELDS.

In the Annual Report for 1911 plans were published showing the locations of true north lines laid down at six places in the Raniganj and Jharia coalfields. Plans showing the locations of four of these lines were reproduced in the 1919 Report. Since then the other two of the lines, the demarcation pillars of which had been destroyed, have been laid down afresh by an officer of the Survey of India. The location plans (Plan D) of these have been reproduced and are attached to this Report.

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

The number of original cases disposed of altogether at the end of 1921 stood at 441, thirty-eight 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. 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, 1921.**

Mr. R. R. Simpson was Officiating Chief Inspector of Mines from the 1st to the 10th January, and was Chief Inspector of Mines from the 11th January to the end of the year.

Mr. H. Lancaster was Inspector of Mines, No. 2 Circle, up to the 9th April, when he proceeded on privilege leave combined with furlough for 9 months and 18 days. He returned to duty on the 20th December.

Mr. F. L. G. Simpson was a temporary Inspector of Mines, and held charge of No. 1 Circle throughout the year. He held charge of both Nos. 1 and 2 Circles from the 10th April to the 20th December. At the end of the year he proceeded on two months' privilege leave, his temporary appointment to the Mines Department terminating on the expiry thereof. He had served in the Department for three years, and although the work was strenuous it had been to him a labour of love. The great zeal, tact and sagacity with which he performed his duties were remarkable, and the public spirit which he displayed in joining the Department at a time when owing to War conditions it was hard pressed, was most commendable.

Mr. D. Penman was appointed an Inspector of Mines on the 1st December 1921, and took over charge of No. 1 Circle on the afternoon of the 31st December.

Messrs. J. H. Lang and W. H. Goldsworthy were Junior Inspectors of Mines throughout the year.

Mr. J. G. Harding, Junior Inspector of Mines, was permitted to resign his appointment on grounds of ill-health with effect from the afternoon of the 16th June.

Messrs. G. S. Cameron, W. Kirby and H. R. Tallis were appointed Junior Inspectors of Mines on the 25th April, 28th April, and 16th December, respectively.

I have the honour to be,

SIR,

Your most obedient servant,

R. R. SIMPSON,

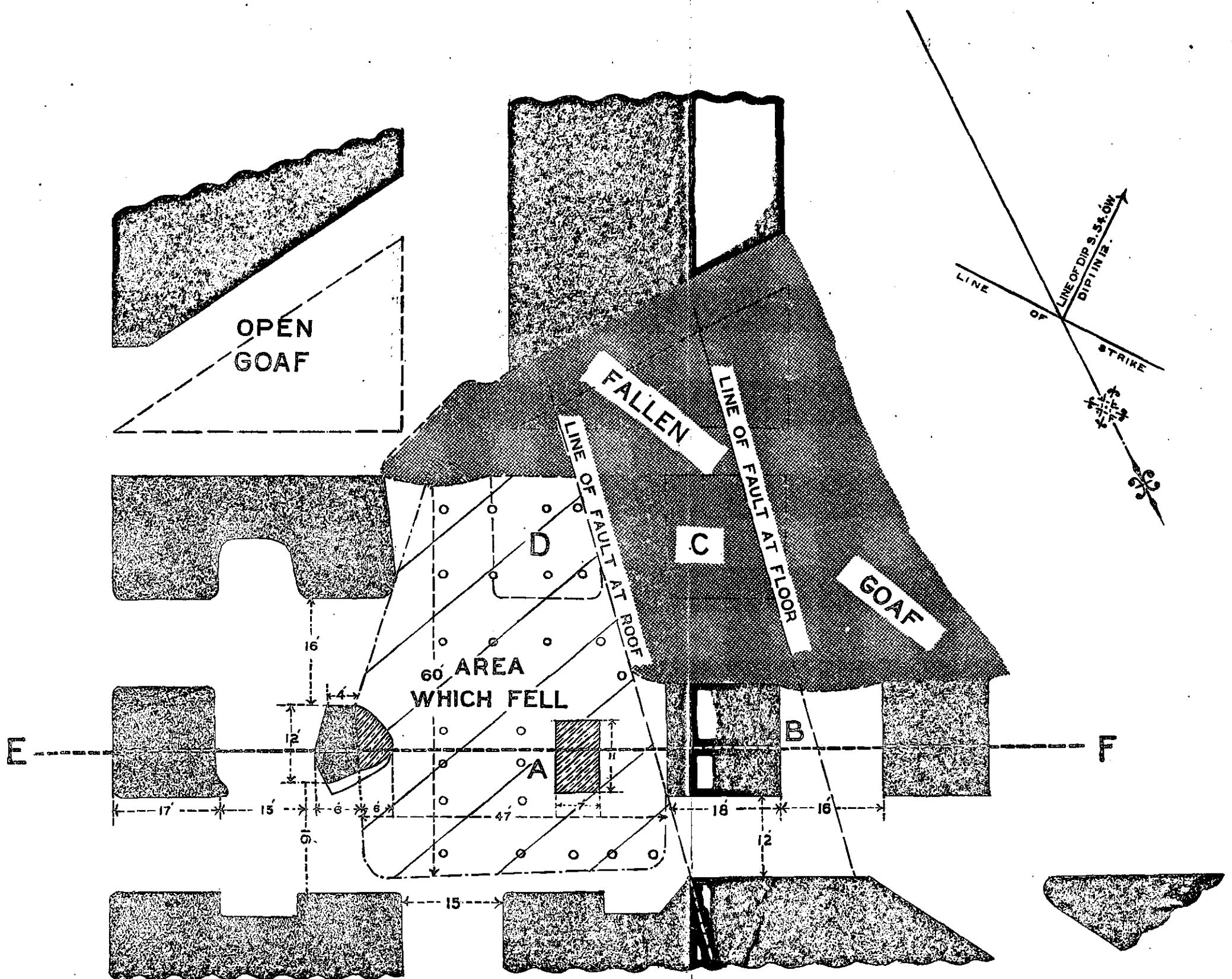
*Chief Inspector of Mines in India.*

PLAN ILLUSTRATING REPORT ON  
FATAL ACCIDENT BY FALL OF ROOF

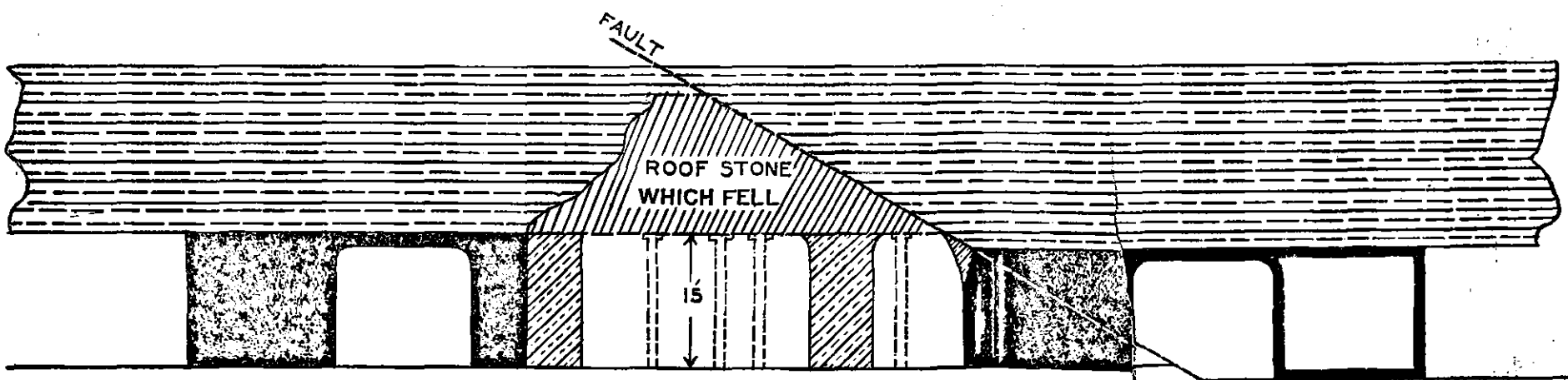
AT

THE RANEEGUNGE COAL ASSOCIATION LTD.'S KUSTORE SOUTH COLLIERY.

Scale 1 inch = 20 feet.



PLAN



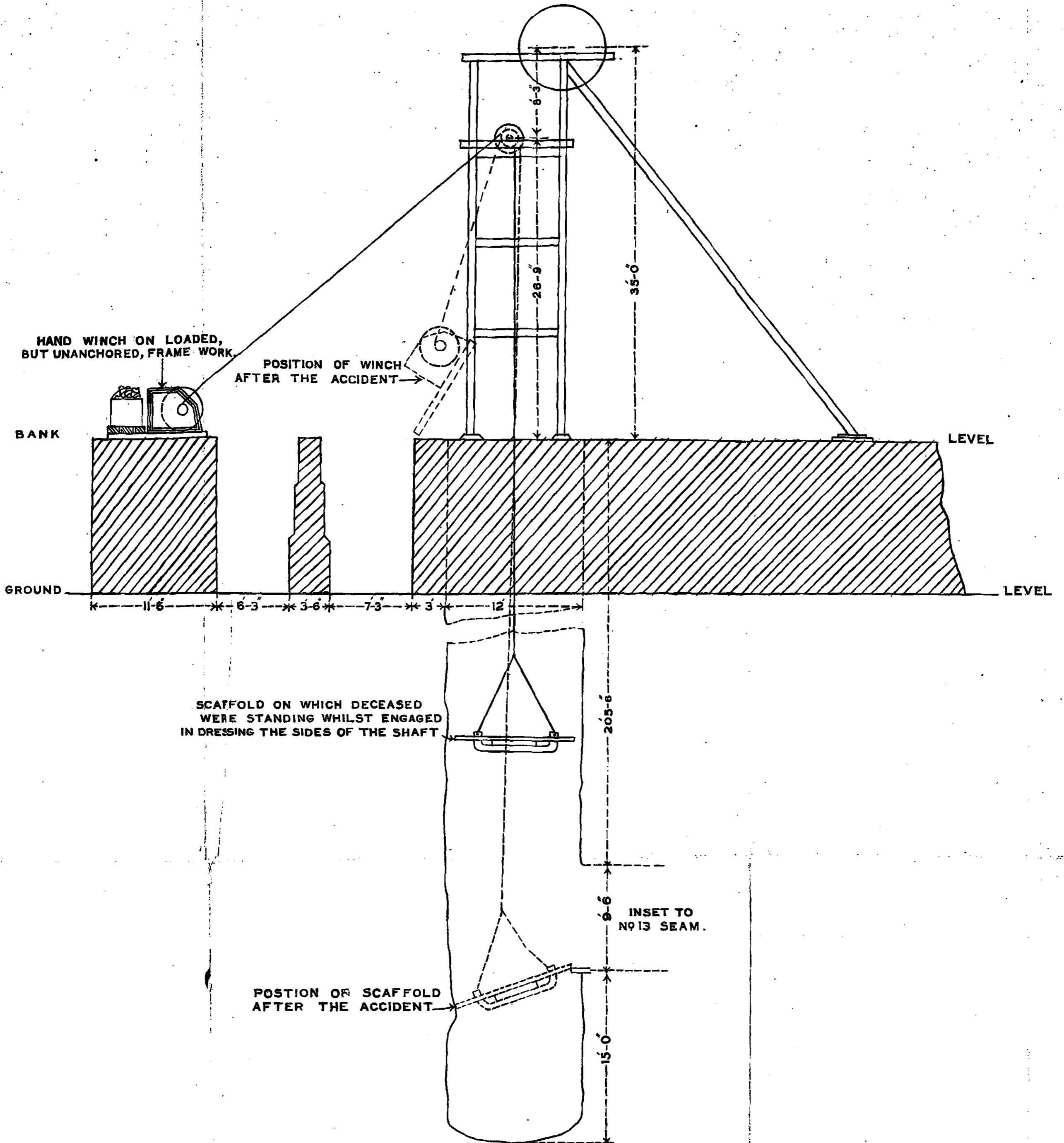
SECTION ON E.F.

REFERENCES

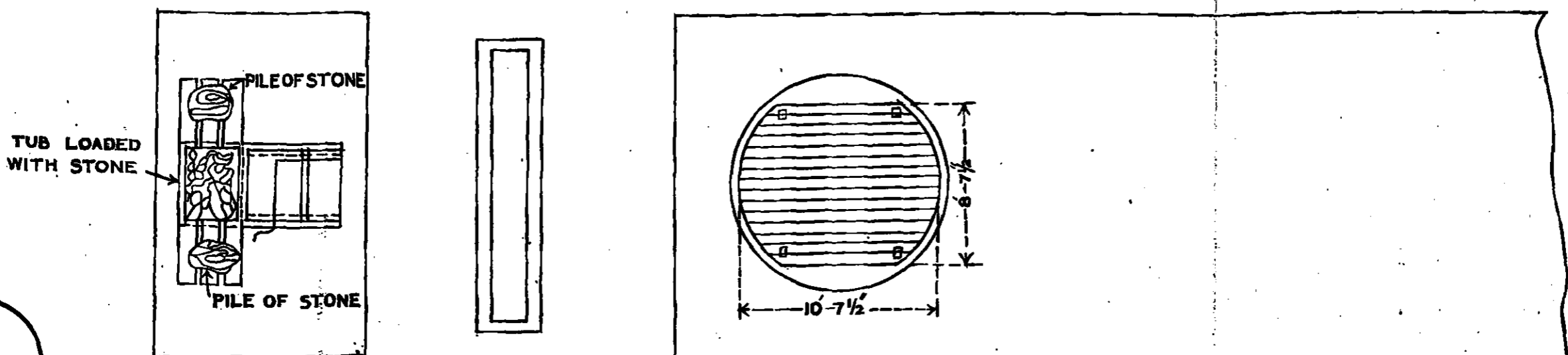
- PILLARS OF COAL STANDING ----- [Solid black square]
- PILLARS OF COAL CRUSHED BY FALL ----- [Hatched square]
- PILLARS OF COAL EXTRACTED ----- [Empty square]
- FALLEN GOAF BEFORE FALL ----- [Dotted square]
- AREA WHICH FELL ----- [Diagonal hatched square]
- ROOF STONE WHICH FELL ----- [Cross-hatched square]

# PLAN ILLUSTRATING REPORT ON FATAL ACCIDENT IN A SHAFT

AT  
THE BARAKAR COAL Co., LTD.'S KATRAS COLLIERY.  
Scale 1 inch = 8 feet.

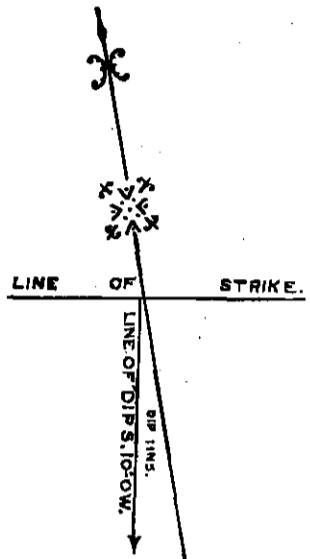


SECTIONAL ELEVATION

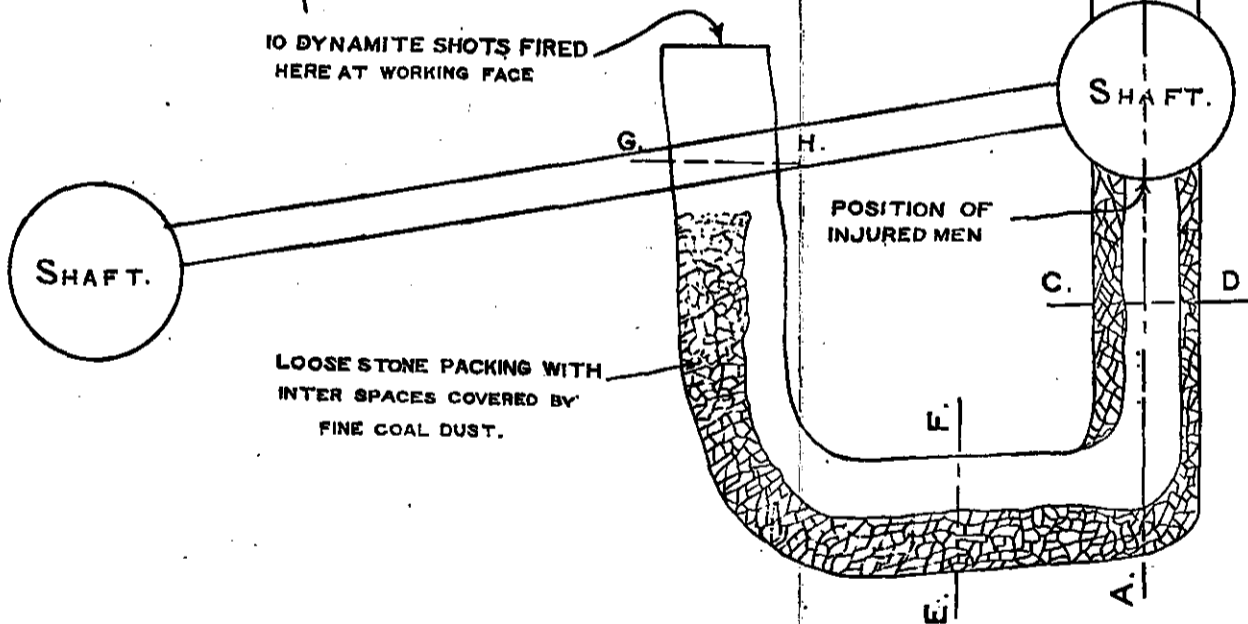


PLAN.

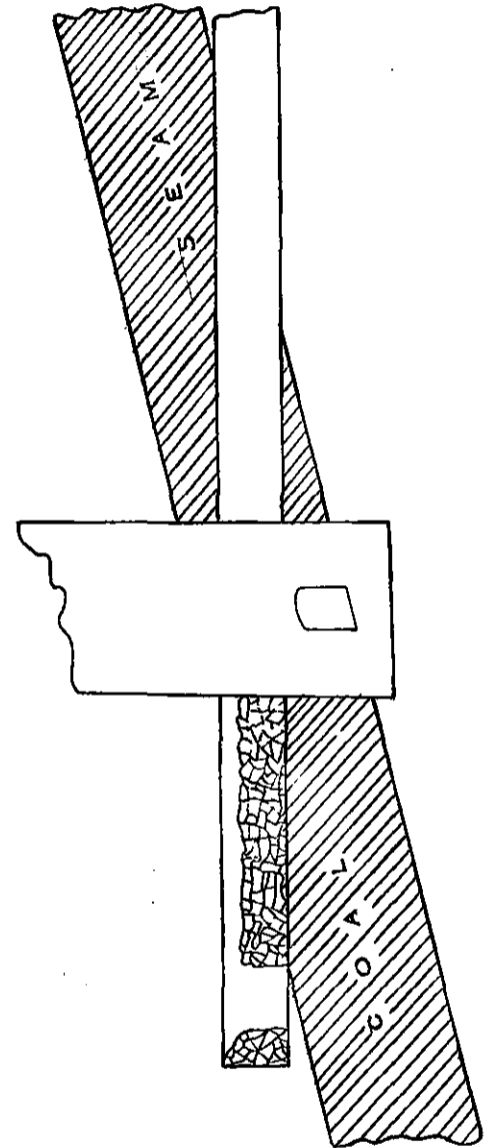
# PLAN AND SECTIONS ILLUSTRATING REPORT ON AN ACCIDENT BY EXPLOSION OF COAL DUST AT THE TATA IRON AND STEEL Co., LTD.'S SIJUA COLLIERY



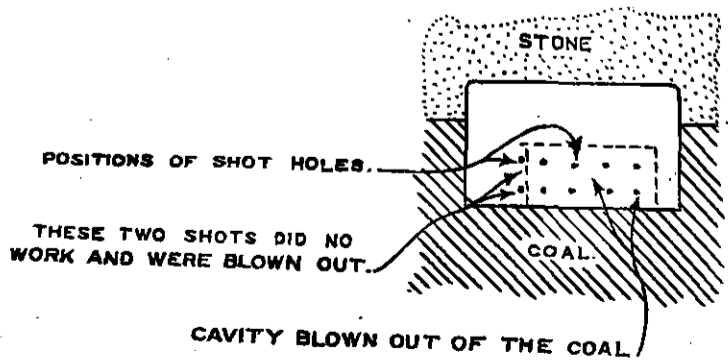
PLAN  
SCALE 1 INCH = 20 FEET.



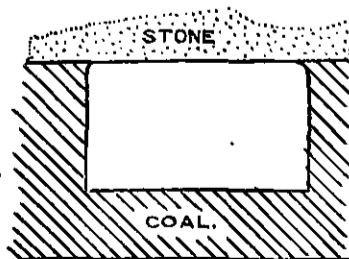
SECTION ON A. B.



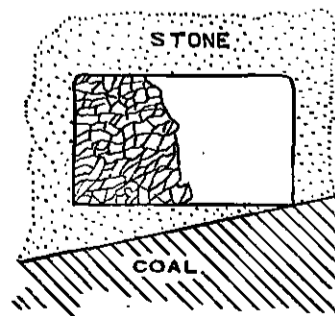
CROSS SECTION AT WORKING FACE



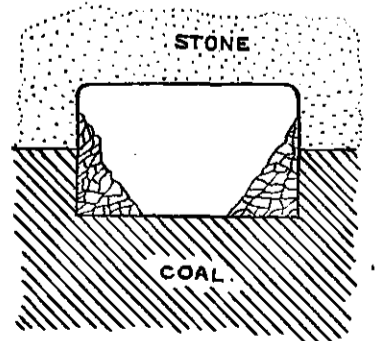
SECTION ON G. H.



SECTION ON E. F.



SECTION ON C. D.

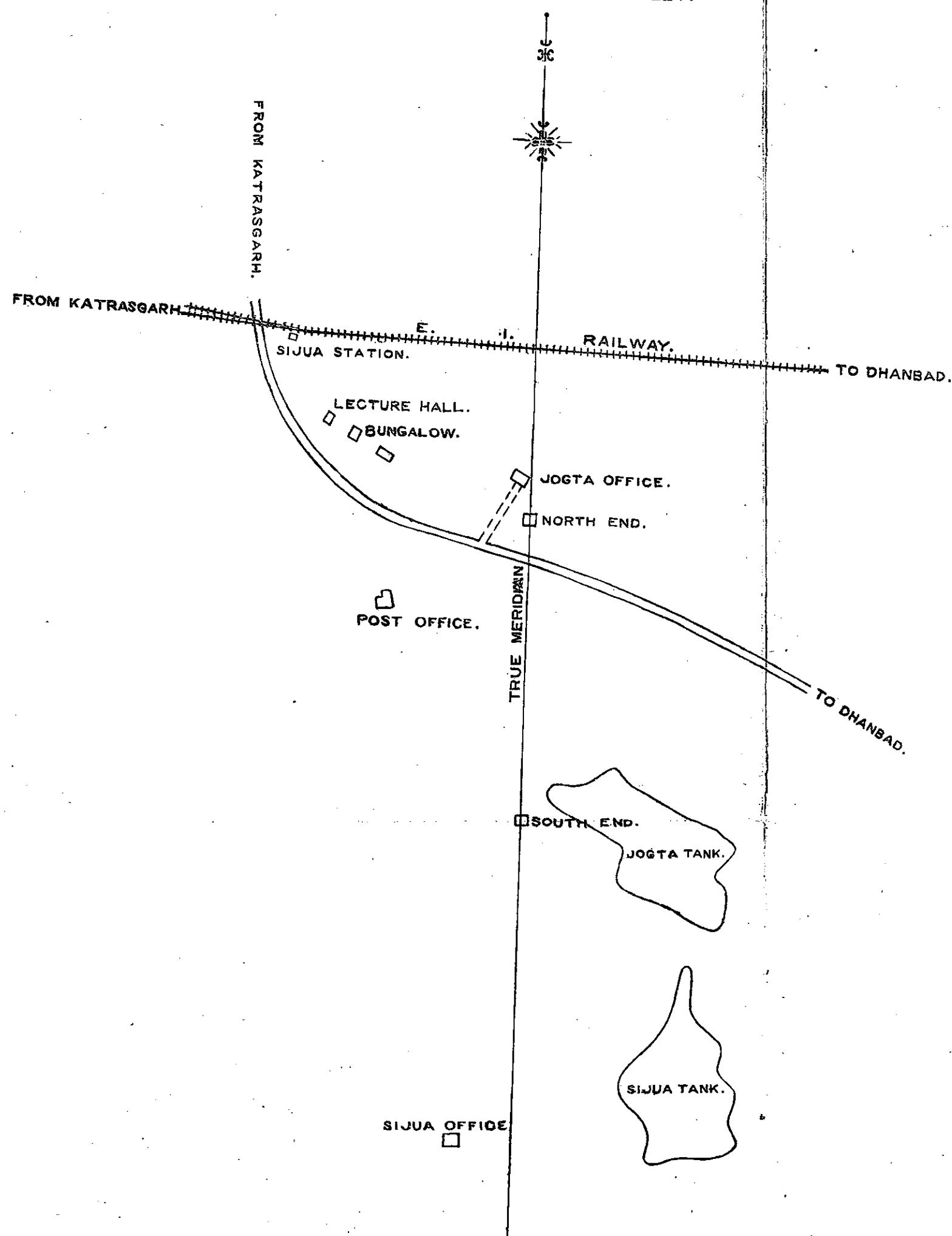


SCALE 1 INCH = 10 FEET.

**RANIGANJ & JHARIA COAL FIELDS.**  
**PLAN SHOWING THE EXACT LOCATION OF TRUE NORTH LINE PILLARS**  
**LAI D DOWN BY THE SURVEY OF INDIA.**  
**FOR PLANS SHOWING THE LOCATION OF SIMILAR LINES LAID DOWN**  
**AT DISHARGARH, NANDI, DHANBAD & JORAPOKHUR**  
**SEE ANNUAL REPORT, CHIEF INSPECTOR OF MINES FOR 1919.**

SIJUA (JHARIA COAL FIELD).

SCALE 1 INCH=500 FEET.



DHADKA (RANIGANJ COAL FIELD).

SCALE 1 INCH=500 FEET.

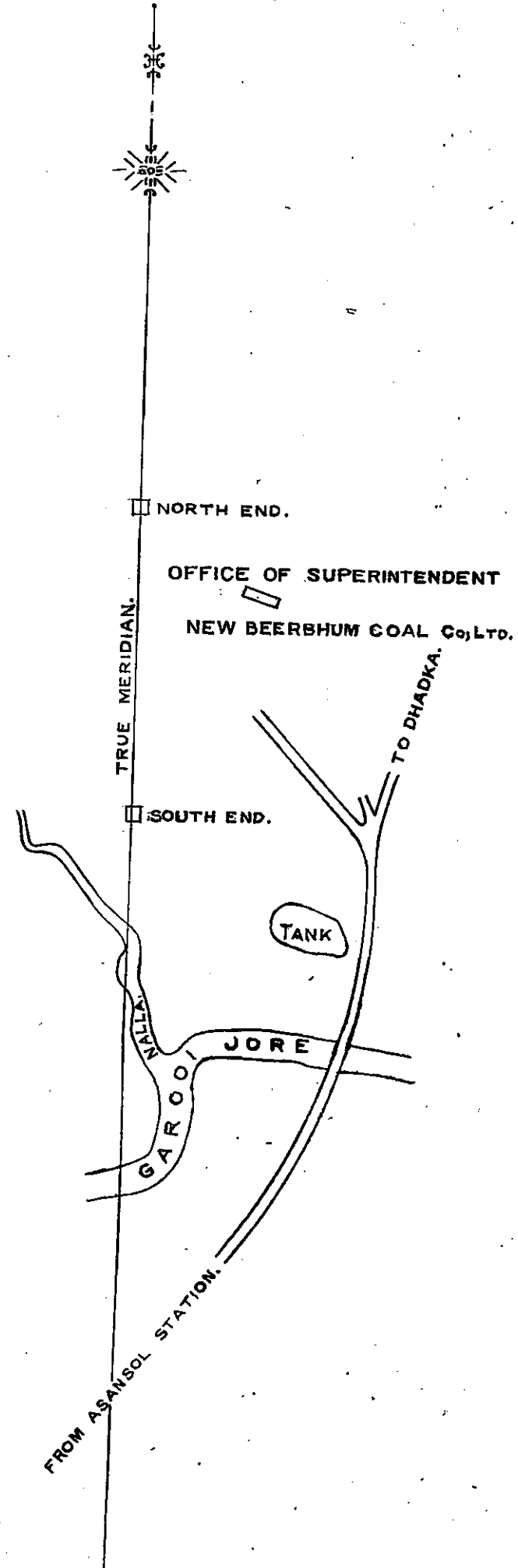


TABLE SHOWING MAGNETIC DECLINATIONS.

YEAR	JHARIA COAL FIELD	RANIGANJ COAL FIELD.
1900	EAST 1° - 45'	1° - 45'
1901	" 1° - 40'	1° - 40'
1902	" 1° - 40'	1° - 35'
1903	" 1° - 35'	1° - 30'
1904	" 1° - 30'	1° - 25'
1905	" 1° - 25'	1° - 25'
1906	" 1° - 20'	1° - 20'
1907	" 1° - 20'	1° - 15'
1908	" 1° - 15'	1° - 10'
1909	" 1° - 10'	1° - 5'
1910	" 1° - 5'	1° - 0'
1911	" 1° - 0'	0° - 55'
1912	" 0° - 55'	0° - 50'
1913	" 0° - 50'	0° - 45'
1914	" 0° - 45'	0° - 40'
1915	" 0° - 40'	0° - 35'
1916	" 0° - 35'	0° - 30'
1917	" 0° - 30'	0° - 25'
1918	" 0° - 25'	0° - 20'
1919	" 0° - 20'	0° - 15'
1920	" 0° - 15'	0° - 10'

Note:- WHEN CHECKING THEIR INSTRUMENTS AT ANY OF THESE STATIONS SURVEYORS SHOULD REMOVE FROM THEIR PERSONS ALL IRON AND STEEL SUCH AS KNIVES, KEYS, IRON SPECTACLES ETC.



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 1921—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.								Grand total below and above ground.	
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.				ABOVE GROUND.					
								Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.		
Bihar and Orissa .	Hazaribagh {	Bokaro-Ramgarh	3	3	...	2	6	929,143	3,802	3,477	23	7,302	1,815	2,180	40	4,035	11,337
		Giridih . . .	12	4	8	9	17	804,135	4,776	1,590	34	6,400	1,993	960	68	3,021	9,421
		Jharia . . .	11	5	6	3	4	180,834	468	387	45	900	486	384	74	944	1,844
	Manbhum {	Jharia . . .	371	189	182	246	486	9,878,815	27,725	21,083	526	49,334	24,142	13,830	1,832	39,854	89,188
		Raniganj . . .	110	19	91	92	121	938,198	3,482	2,427	29	5,938	3,122	1,971	170	5,263	11,201
	Palamau, Daltonganj . . .	1	1	...	1	2	36,500	74	69	24	167	82	39	...	121	288	
	Sambalpur, Hingir-Rampur . . .	3	1	2	...	...	77,277	279	178	...	457	175	43	...	218	675	
	Sonthal Parganas. {	Jainty . . .	3	3	...	2	2	105,652	385	258	...	643	438	167	...	605	1,248
		Raniganj . . .	8	3	5	1	1	14,015	118	95	...	213	301	201	10	602	815
	TOTAL . . .	522	228	294	357	639	12,964,659	41,109	29,564	681	71,354	32,554	19,865	2,244	54,663	126,017	
Burma . . .	Southern Shan States . . .	2	1	1	...	...	300	63	...	...	63	184	23	...	207	270	
Central Provinces . . .	Betul . . . . .	2	...	2	...	...	210	20	28	...	48	16	15	2	33	51	
	Chanda, Ballarpur . . . . .	7	6	1	6	8	171,425	1,116	330	28	1,474	543	131	34	708	2,182	
	Chhindwara, Pench Valley . . . . .	38	8	30	21	39	449,311	2,922	1,988	316	5,226	1,199	1,057	319	2,575	7,801	
	Narsinghpur, Mohpani . . . . .	1	1	...	...	...	89,623	797	466	...	1,263	603	140	...	743	2,006	
	Yestmal . . . . .	2	1	1	...	...	2,345	9	6	...	15	36	31	...	67	82	
	TOTAL . . .	50	16	34	27	47	712,914	4,864	2,818	344	8,026	2,397	1,374	355	4,126	12,152	

Panjab	Jhelum . . . . .	16	...	16	7	10	50,839	1,011	...	7	1,018	584	...	11	505	1,618
	Mianwali . . . . .	1	...	1	...	...	11,552	91	...	...	91	76	...	...	76	167
	Shahpur . . . . .	3	...	3	1	1	4,751	53	...	...	53	65	...	...	65	118
	<b>TOTAL</b>	<b>20</b>	<b>...</b>	<b>20</b>	<b>8</b>	<b>11</b>	<b>67,242</b>	<b>1,155</b>	<b>...</b>	<b>7</b>	<b>1,162</b>	<b>725</b>	<b>...</b>	<b>11</b>	<b>736</b>	<b>1,808</b>
<b>GRAND TOTAL (COAL) FOR 1931 .</b>		<b>884</b>	<b>466</b>	<b>418</b>	<b>581</b>	<b>1,005</b>	<b>18,358,934</b>	<b>65,788</b>	<b>42,000</b>	<b>1,171</b>	<b>108,957</b>	<b>49,943</b>	<b>38,666</b>	<b>3,081</b>	<b>61,690</b>	<b>190,847</b>
" " OF PRE- CEDING YEAR .		<b>783</b>	<b>421</b>	<b>362</b>	<b>459</b>	<b>965</b>	<b>17,082,711</b>	<b>61,157</b>	<b>41,052</b>	<b>713</b>	<b>102,922</b>	<b>45,537</b>	<b>24,738</b>	<b>2,746</b>	<b>73,021</b>	<b>175,943</b>
<b>DIFFERENCE</b>		<b>+101</b>	<b>+45</b>	<b>+56</b>	<b>+122</b>	<b>+40</b>	<b>+1,276,223</b>	<b>+4,630</b>	<b>+948</b>	<b>+458</b>	<b>+6,035</b>	<b>+4,406</b>	<b>+3,928</b>	<b>+335</b>	<b>+8,669</b>	<b>+14,704</b>
<b>B.—MICA.</b>																
<b>Cwt.</b>																
Bihar and Orissa	Gray . . . . .	87	...	87	5	5	5,018	654	812	78	944	394	177	144	715	1,659
	Hazaribagh . . . . .	409	40	369	67	68	17,987	2,775	2,010	708	6,468	1,872	1,305	1,026	4,206	10,691
	Manbhum . . . . .	1	...	1	...	...	4	8	...	...	8	...	...	...	...	8
	Monghyr . . . . .	7	...	7	...	...	291	85	46	2	133	85	80	84	149	232
	Sambalpur . . . . .	1	...	1	...	...	4	40	45	5	90	...	...	...	...	90
	<b>TOTAL</b>	<b>465</b>	<b>40</b>	<b>415</b>	<b>72</b>	<b>73</b>	<b>23,299</b>	<b>4,462</b>	<b>2,413</b>	<b>788</b>	<b>7,603</b>	<b>2,351</b>	<b>1,612</b>	<b>1,304</b>	<b>6,067</b>	<b>12,730</b>
Central Provinces	Balaghat . . . . .	1	...	1	...	...	...	3	2	...	5	...	...	...	...	5
Madras	Kistna . . . . .	1	...	1	...	...	8	3	3	...	6	1	...	...	1	7
	Nellore . . . . .	69	26	69	27	27	4,257	1,385	716	79	2,180	381	267	92	740	2,920
	Nilgiris . . . . .	2	...	2	...	...	14	11	...	...	11	9	5	...	14	25
	Salem . . . . .	1	...	1	...	...	20	2	...	...	2	33	11	2	46	48
	<b>TOTAL</b>	<b>93</b>	<b>26</b>	<b>97</b>	<b>27</b>	<b>27</b>	<b>4,299</b>	<b>1,401</b>	<b>719</b>	<b>79</b>	<b>2,199</b>	<b>424</b>	<b>283</b>	<b>94</b>	<b>801</b>	<b>3,000</b>

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 1921—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.				Grand total below and above ground.
								Adult males.	Adult females.	Children (under 13).	Total below ground.	Adult males.	Adult females.	Children (under 13).	Total above ground.	
Rajputana . . . . .	Ajmer-Merwara . . . . .	60	...	60	14	14	1,872	340	84	38	462	181	134	81	346	808
	<b>GRAND TOTAL (MICA) FOR 1921.</b>	<b>609</b>	<b>66</b>	<b>543</b>	<b>113</b>	<b>114</b>	<b>29,470</b>	<b>6,206</b>	<b>3,218</b>	<b>905</b>	<b>10,329</b>	<b>2,956</b>	<b>1,929</b>	<b>1,329</b>	<b>6,214</b>	<b>16,543</b>
	" " OF PRECEDING YEAR.	674	68	606	181	187	44,666	7,983	4,592	1,255	13,830	3,714	2,840	1,577	6,181	21,961
	<b>DIFFERENCE</b>	<b>-65</b>	<b>-2</b>	<b>-63</b>	<b>-68</b>	<b>-73</b>	<b>-15,196</b>	<b>-1,777</b>	<b>-1,374</b>	<b>-350</b>	<b>-3,501</b>	<b>-758</b>	<b>-911</b>	<b>-248</b>	<b>-1,917</b>	<b>-5,418</b>
Bombay . . . . .	<b>C.—MANGANESE ORE.</b>															
	Panch Mahals . . . . .	2	1	1	...	...	Tons. 41,276	806	558	153	1,517	204	77	23	304	1,821
	Balaghat . . . . .	28	1	27	21	22	201,264	2,068	2,596	148	4,812	620	690	145	1,455	6,267
	Bhandara . . . . .	4	...	4	3	3	48,112	305	463	34	802	156	180	2	348	1,150
	Chhindwara . . . . .	3	1	2	1	3	43,661	374	543	37	964	212	149	43	403	1,357
	Nagpur . . . . .	21	1	20	16	18	180,851	1,901	2,269	33	4,203	672	556	66	1,294	5,497
	<b>TOTAL</b>	<b>56</b>	<b>3</b>	<b>53</b>	<b>41</b>	<b>46</b>	<b>473,838</b>	<b>4,648</b>	<b>5,371</b>	<b>252</b>	<b>10,771</b>	<b>1,660</b>	<b>1,585</b>	<b>255</b>	<b>3,500</b>	<b>14,271</b>

Madras . . . . .	Vizagapatam . . . . .	7	...	7	1	2	16,593	694	462	28	1,184	40	11	...	51	1,235
GRAND TOTAL (MANGANESE) FOR 1921.		65	4	61	42	48	534,757	6,148	6,891	433	13,473	1,904	1,673	278	3,855	17,327
" " OF PRECEDING YEAR.		58	7	51	42	45	582,636	4,645	5,144	439	10,228	1,612	1,162	262	3,036	13,264
DIFFERENCE . . . . .		+7	-3	+10	...	+3	-47,879	+1,503	+1,747	-6	+3,244	+292	+511	+16	+819	+4,063
<b>D.—LIMESTONE.</b>																
Barma . . . . .	Northern Shan States . . . . .	1	...	1	1	2	Tons. 4,967	36	...	...	36	...	...	...	...	36
Central Provinces	Bilaspur . . . . .	2	...	2	...	...	14,343	79	33	8	120	78	93	17	168	308
	Jabalpur, Katni . . . . .	33	1	32	22	22	264,939	1,434	3,203	168	4,810	479	837	109	1,425	6,235
	TOTAL . . . . .	35	1	34	22	22	279,287	1,513	3,241	176	4,930	557	930	126	1,613	6,543
Punjab . . . . .	Hoshiarpur . . . . .	1	...	1	...	...	...	20	...	...	20	10	...	...	10	30
GRAND TOTAL (LIMESTONE) FOR 1921.		37	1	36	23	24	284,254	1,569	3,241	17	4,986	567	930	126	1,623	6,609
TOTAL OF PRECEDING YEAR.		23	1	22	17	16	161,340	1,328	1,626	129	3,083	333	743	126	1,202	4,285
DIFFERENCE . . . . .		+14	...	+14	+6	+6	+122,914	+241	+1,615	+47	+1,903	+234	+187	...	+421	+2,324
<b>E.—SALT.</b>																
Punjab	Jhelum . . . . .	2	1	1	1	1	Tons. 95,751	471	265	29	765	62	...	...	62	827
	Mianwali . . . . .	1	...	1	...	...	12,382	62	...	14	76	...	...	...	...	76
	Shahpur . . . . .	1	...	1	...	...	14,951	33	24	5	62	...	...	...	...	62
GRAND TOTAL (SALT) FOR 1921.		4	1	3	1	1	123,084	566	289	48	903	62	...	...	62	965
" " OF PRECEDING YEAR.		4	1	3	1	2	181,092	499	333	69	901	67	1	...	68	969
DIFFERENCE . . . . .		...	...	...	...	-1	-58,008	+67	-44	+21	+2	-5	-1	...	-6	-4

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 1921—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.				Grand total below and above ground.
								Adult males.	Adult females.	Children (under 13).	Total below ground.	Adult males.	Adult females.	Children (under 13).	Total above ground.	
Burma	Katha, Mogok	4	2	2	F.—GEMS.		103,915	784	...	...	784	458	...	...	458	1,242
					(a) Rubies.	Carats. 112,197										
					(b) Sapphires.	48,916										
					(c) Spinels.	82,802										
	TOTAL	4	2	2	...	...	103,915	784	...	...	784	458	...	...	458	1,242
Rajputana	Ajmer	2	...	2	(d) Beryl.		6,300	11	—	...	11	...	...	...	...	11
	GRAND TOTAL (Gems) FOR 1921	6	2	4	...	...	200,215	795	...	...	795	458	...	...	458	1,253
	" " OF PRECEDING YEAR	6	2	4	3	5	156,108	789	1	...	790	429	...	...	429	1,219
	DIFFERENCE	...	...	...	—3	—5	+44,107	+6	—1	...	+5	+29	...	...	+29	+34

		G.—SLATE.																
							Tons.											
Bihar and Orissa	Monghyr . . . . .	7	...	7	5	5	2,829	148	112	64	324	149	...	...	149	473		
Panjab	Gurgaon . . . . .	6	...	6	4	4	42,630	114	...	78	192	23	...	6	29	321		
	Kangra . . . . .	5	...	5	...	...	4,878	93	2	2	97	23	20	14	57	154		
	TOTAL	11	...	11	4	4	47,508	207	2	80	289	46	20	20	86	375		
	GRAND TOTAL (SLATE) FOR 1921.	18	...	18	9	9	50,387	355	114	144	613	195	20	20	235	848		
	" " OF PRECEDING YEAR.	18	...	18	5	5	10,345	370	186	74	630	181	30	20	291	861		
	DIFFERENCE . . .	...	...	...	+4	+4	+30,992	-15	-72	+70	-17	+14	-10	..	+4	-13		
		H.—GOLD.																
							Ozs.											
Bihar and Orissa	Singhbhum . . . . .	1	1	...	...	...	...	...	...	...	...	18	...	...	18	18		
Madras	Anantapur . . . . .	3	3	...	2	2	10,108	101	...	...	101	309	82	43	494	535		
	GRAND TOTAL (GOLD) FOR 1921.	4	4	...	2	2	10,108	101	...	...	101	322	82	43	447	548		
	" " OF PRECEDING YEAR.	4	4	...	1	2	13,645	104	15	...	119	250	43	22	315	484		
	DIFFERENCE . . .	...	...	...	+1	...	-3,537	-3	-15	...	-18	+72	+39	+21	+132	+114		

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 1921—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.				ABOVE GROUND.				Grand total below and above ground.
								Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
I.—IRON ORE.																
Bihar and Orissa	Singbhum . . . . .	5	1	4	2	2	236,286	848	587	90	1,525	480	264	11	755	2,280
Burma.	Mandalay . . . . .	1	...	1	...	...	11,916	159	...	...	159	23	1	...	24	183
	Northern Shan States . . . . .	2	...	2	2	2	37,915	237	28	...	265	311	11	...	322	587
	TOTAL	3	...	3	2	2	49,831	396	28	...	424	334	12	...	346	770
Rajputana	Ajmer-Merwara . . . . .	1	1	...	...	...	73	5	...	...	5	25	...	...	25	30
GRAND TOTAL (IRON) FOR 1921.		9	2	7	4	4	286,190	1,249	615	90	1,954	839	276	11	1,126	3,080
" " OF PRECEDING YEAR.		11	2	9	3	4	148,472	714	307	63	1,084	1,138	327	41	1,508	2,590
DIFFERENCE :		-2	...	-2	+1	...	+137,718	+535	+308	+27	+870	-299	-51	-30	-380	+490





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 1921—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.				Grand total below and above ground.
								Adult males.	Adult females.	Children (under 13).	Total below ground.	Adult males.	Adult females.	Children (under 13).	Total above ground.	
<b>M.—COPPER ORE.</b>																
Bihar and Orissa . . .	Singhbhaini . . . . .	3	2	1	2	2	Tons. 32,560	711	...	...	711	1,382	672	72	2,126	2,837
Central Provinces . . .	Balaghat . . . . .	1	...	1	...	...	...	23	4	...	27	12	5	2	19	48
	<b>GRAND TOTAL (COPPER ORE) FOR 1921.</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>32,560</b>	<b>734</b>	<b>4</b>	<b>...</b>	<b>738</b>	<b>1,394</b>	<b>677</b>	<b>74</b>	<b>2,145</b>	<b>2,883</b>
	<b>TOTAL OF PRECEDING YEAR.</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>28,167</b>	<b>508</b>	<b>6</b>	<b>...</b>	<b>512</b>	<b>955</b>	<b>637</b>	<b>52</b>	<b>1,644</b>	<b>2,156</b>
	<b>DIFFERENCE . . .</b>	<b>+1</b>	<b>+1</b>	<b>...</b>	<b>+1</b>	<b>-1</b>	<b>+4,393</b>	<b>+226</b>	<b>-2</b>	<b>...</b>	<b>+326</b>	<b>+439</b>	<b>+40</b>	<b>+22</b>	<b>+501</b>	<b>+727</b>
<b>N.—BAUXITE.</b>																
Bombay . . . . .	Kaira . . . . .	1	1	...	1*	1	Cwt. 93,060	186	55	17	208	9	4	...	13	221
	<b>TOTAL OF PRECEDING YEAR . . .</b>	<b>1</b>	<b>1</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>78,630</b>	<b>45</b>	<b>35</b>	<b>11</b>	<b>91</b>	<b>6</b>	<b>...</b>	<b>...</b>	<b>6</b>	<b>97</b>
	<b>DIFFERENCE . . .</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>+1</b>	<b>+1</b>	<b>+14,430</b>	<b>+91</b>	<b>+20</b>	<b>+6</b>	<b>+117</b>	<b>+3</b>	<b>+4</b>	<b>...</b>	<b>+7</b>	<b>+124</b>
<b>O.—CALCITE.</b>																
Bihar and Orissa . . .	Bhagalpur . . . . .	1	...	1	...	...	Tons. 3	2	2	...	4	2	2	...	4	8

\* In Jabalpur District, Central Provinces—mine closed.

		P.—CLAY.					Tons.										
Bihar and Orissa	Bhagalpur . . . . .	2	...	2	...	...	1,863	50	50	1	101	116	73	96	285	336	
	Mandbhum . . . . .	1	...	1	...	...	20,109	88	33	...	131	...	...	...	...	131	
	Palamu . . . . .	1	...	1	...	...	3,678	12	18	6	36	18	10	6	34	70	
	<b>TOTAL</b> . . . . .	<b>4</b>	<b>...</b>	<b>4</b>	<b>...</b>	<b>...</b>	<b>25,650</b>	<b>150</b>	<b>101</b>	<b>7</b>	<b>258</b>	<b>134</b>	<b>83</b>	<b>103</b>	<b>319</b>	<b>577</b>	
Central Provinces . . . . .	Jabalpur . . . . .	6	2	3	3	3	49,024	347	431	49	817	40	...	...	40	857	
Delhi . . . . .	Delhi . . . . .	5	...	5	...	...	12,801	49	...	...	49	34	1	...	35	84	
<b>GRAND TOTAL (CLAY) FOR 1921.</b>		<b>14</b>	<b>2</b>	<b>12</b>	<b>3</b>	<b>3</b>	<b>87,475</b>	<b>546</b>	<b>522</b>	<b>56</b>	<b>1,124</b>	<b>208</b>	<b>84</b>	<b>102</b>	<b>394</b>	<b>1,516</b>	
<b>TOTAL OF PRECEDING YEAR.</b>		<b>12</b>	<b>2</b>	<b>10</b>	<b>2</b>	<b>6</b>	<b>90,538</b>	<b>520</b>	<b>545</b>	<b>52</b>	<b>1,117</b>	<b>204</b>	<b>123</b>	<b>26</b>	<b>353</b>	<b>1,470</b>	
<b>DIFFERENCE</b> . . . . .		<b>+2</b>	<b>...</b>	<b>+2</b>	<b>+1</b>	<b>-3</b>	<b>-3,063</b>	<b>+26</b>	<b>-23</b>	<b>+4</b>	<b>+7</b>	<b>+4</b>	<b>-39</b>	<b>+76</b>	<b>+41</b>	<b>+48</b>	
		<b>Q.—LEAD ORE.</b>					Tons.										
Burma . . . . .	Northern Shan States . . . . .	1	1	...	1	4	*144,089	992	...	...	992	428	...	...	428	1,420	
Central Provinces . . . . .	Drug . . . . .	1	...	1	...	...	1/2	5	12	...	17	5	12	...	17	34	
<b>GRAND TOTAL (LEAD ORE) FOR 1921.</b>		<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>144,089 1/2</b>	<b>997</b>	<b>12</b>	<b>...</b>	<b>1,009</b>	<b>433</b>	<b>12</b>	<b>...</b>	<b>445</b>	<b>1,454</b>	
<b>TOTAL OF PRECEDING YEAR.</b>		<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>128,908 1/2</b>	<b>617</b>	<b>12</b>	<b>..</b>	<b>629</b>	<b>343</b>	<b>12</b>	<b>...</b>	<b>355</b>	<b>984</b>	
<b>DIFFERENCE</b> . . . . .		<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>-1</b>	<b>+15,181 1/2</b>	<b>+380</b>	<b>...</b>	<b>...</b>	<b>+380</b>	<b>+90</b>	<b>...</b>	<b>...</b>	<b>+90</b>	<b>+470</b>	
		<b>R.—TIN ORE.</b>					Tons.										
Bihar and Orissa . . . . .	Hazaribagh . . . . .	1	1	...	...	...	...	4	...	...	4	5	4	5	14	18	
Burma . . . . .	Mergul . . . . .	11	1	10	2	2	130	446	...	...	446	218	7	...	225	671	
	Tavoy . . . . .	18	1	17	...	...	901	393	...	...	393	488	34	...	523	916	
	Thaton . . . . .	1	...	1	...	...	1	3	6	...	9	...	...	...	...	9	
<b>TOTAL</b> . . . . .		<b>30</b>	<b>2</b>	<b>28</b>	<b>2</b>	<b>2</b>	<b>1,032</b>	<b>842</b>	<b>6</b>	<b>...</b>	<b>848</b>	<b>706</b>	<b>41</b>	<b>...</b>	<b>747</b>	<b>1,595</b>	
<b>GRAND TOTAL (TIN ORE) FOR 1921.</b>		<b>31</b>	<b>3</b>	<b>26</b>	<b>2</b>	<b>2</b>	<b>1,032</b>	<b>846</b>	<b>6</b>	<b>...</b>	<b>852</b>	<b>711</b>	<b>45</b>	<b>5</b>	<b>761</b>	<b>1,613</b>	
<b>TOTAL OF PRECEDING YEAR.</b>		<b>25</b>	<b>2</b>	<b>23</b>	<b>1</b>	<b>1</b>	<b>1,055 1/2</b>	<b>639</b>	<b>59</b>	<b>8</b>	<b>706</b>	<b>373</b>	<b>36</b>	<b>13</b>	<b>422</b>	<b>1,126</b>	
<b>DIFFERENCE</b> . . . . .		<b>+6</b>	<b>+1</b>	<b>+5</b>	<b>+1</b>	<b>+1</b>	<b>-23 1/2</b>	<b>+207</b>	<b>-53</b>	<b>-8</b>	<b>+146</b>	<b>+338</b>	<b>+9</b>	<b>-8</b>	<b>+339</b>	<b>+485</b>	

\* Amount of refined lead extracted=39,717 Tons.

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 1921—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.				Grand total below and above ground.
								Adult males.	Adult females.	Children (under 13).	Total below ground.	Adult males.	Adult females.	Children (under 13).	Total above ground.	
					<b>S.—STEATITE.</b>											
Bihar and Orissa . . .	Bhagalpur . . . . .	1	...	1	...	...	Cwt. 1,800	5	3	...	8	3	3	...	6	14
Central Provinces . . .	Jabalpur . . . . .	3	...	3	3	3	21,597	71	51	...	122	19	55	21	95	217
Madras . . . . .	Nellore . . . . .	2	...	2	...	...	33	4	...	...	4	9	2	...	11	15
	<b>GRAND TOTAL (STEATITE) FOR 1921.</b>	6	...	6	3	3	23,430	80	54	...	134	31	60	21	112	246
	" " <b>OF PRECEDING YEAR.</b>	4	...	4	3	3	45,910	74	51	...	125	26	49	17	92	217
	<b>DIFFERENCE . . . . .</b>	+2	...	+2	...	...	-22,480	+6	+3	...	+9	+5	+11	+4	+20	+29
					<b>T.—FULLERS' EARTH.</b>											
Central Provinces . . .	Jabalpur . . . . .	...	...	...	...	...	Tons. 113*									
	<b>TOTAL OF PRECEDING YEAR . . . . .</b>	...	...	...	...	...	197	<i>Labour figures included with those for limestone</i>								
	<b>DIFFERENCE . . . . .</b>	...	...	...	...	...	-84									

\*Won from a limestone mine.

		U.—SILVER.																
							Ozs.											
Burma	Northern Shan States	...	...	...	...	...	3,555,021*	<i>Labour figures included with those for lead ore.</i>										
Madras	Anantapur	...	...	...	...	...	619†	<i>Labour figures included with those for gold.</i>										
<b>GRAND TOTAL (SILVER) FOR 1921.</b>		...	...	...	...	...	3,555,640	...	...	...	...	...	...	...	...	...	...	
<b>TOTAL OF PRECEDING YEAR .</b>		...	...	...	...	...	2,870,595	...	...	...	...	...	...	...	...	...	...	
<b>DIFFERENCE . . . .</b>		...	...	...	..	...	+68,045	...	..	...	...	...	...	...	...	...	...	
							<b>V.—APATITE.</b>											
Bihar and Orissa	Singhbhum	1	...	1	...	...	Tons. 347	4	7	...	11	8	21	...	29	40		
							<b>W.—GRAPHITE.</b>											
Bihar and Orissa	Bhagalpur	1	...	1	...	...	Cwt. 20	11	15	4	30	3	5	2	10	40		
Central Provinces	Betul	1	...	1	...	...	483	3	4	...	7	1	1	2	4	11		
<b>GRAND TOTAL (GRAPHITE) FOR 1921.</b>		2	...	2	...	...	508	14	19	4	37	4	6	4	14	51		
<b>TOTAL OF PRECEDING YEAR</b>		7	...	7	...	...	702	37	24	...	61	10	7	...	17	78		
<b>DIFFERENCE . . . .</b>		-5	...	-5	...	...	-199	-23	-5	+4	-24	-6	-1	+4	-3	-27		
							<b>X.—OCHRE.</b>											
Bihar and Orissa	Puri	1	1	...	...	...	Tons. 450	8	...	...	8	25	...	...	25	33		
<b>TOTAL OF PRECEDING YEAR .</b>		1	1	...	...	...	400	8	...	...	8	29	...	...	29	37		
<b>DIFFERENCE . . . .</b>		...	..	...	...	...	+50	...	...	...	...	-4	...	...	-4	-4		

\* Extracted from 164,089 tons of lead ore.  
† Won from the Anantapur gold mine.

APPENDIX I,—contd.

STATISTICS OF MINES AND MINERALS—concl'd.

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 1921—concl'd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBERS OF MINES.		NUMBERS 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.
								Adult males.	Adult females.	Children (under 13).	Total below ground.	Adult males.	Adult females.	Children (under 13).	Total above ground.	
Burma . . . . .	Tavoy . . . . .	1	...	1	...	...	Cwt. 2	5	...	...	5	3	...	...	3	8
	TOTAL OF PRECEDING YEAR . . . . .	1	...	1	...	...	1	...	<i>Labour figures included with those for wolfram</i>						...	...
	DIFFERENCE . . . . .	...	...	...	...	...	+1	+5	...	...	+5	+3	...	...	+3	+8
Madras . . . . .	Kernool . . . . .	1	...	1	...	...	Cwt. 9,400	7	...	...	7	2	8	10	20	27
	TOTAL OF PRECEDING YEAR . . . . .	1	...	1	...	...	4,260	5	...	...	5	4	7	9	20	25
	DIFFERENCE . . . . .	...	...	...	...	...	+5,140	+2	...	...	+2	-2	+1	+1	...	+3

GRAND TOTAL (ALL MINERALS) 1921.	1,741	558	1,183	798	1,293	Tons. 19,949,388½ Cwt. 155,885 Carats. 200,215 Troy ounces. 3,565,748	88,501	57,403	3,395	148,299	60,885	34,548	5,153	100,364	249,883
GRAND TOTAL OF PRECEDING YEAR.	1,716	518	1,168	702	1,228	Tons. 18,452,088½ Cwt. 174,172½ Carats. 158,108 Troy ounces. 2,884,240	83,490	54,457	3,082	141,029	56,990	31,178	5,002	93,170	234,199
DIFFERENCE . . .	+25	+40	-15	+96	+65	Tons. +1,497,320½ Cwt. -18,307½ Carats. +44,107 Troy ounces. +679,508	+5,011	+2,946	+313	+8,270	+3,895	+3,368	+151	+7,194	+15,684

APPENDIX I—contd.

/ Table No. 2.

*Analyses of figures relating to output of coal.*

PROVINCE	District and mineral field,	OPENING STOCKS.		RAISINGS.		TOTAL.		DISPATCHES.		COLLIERY CONSUMPTION.		COAL DELIVERED TO COKING.		CLOSING STOCKS.		COKE MADE.	
		Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Hard coke.	Soft coke.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Assam	Lakhimpur . . . . .	3,424	...	269,198	...	272,622	...	257,495	...	13,483	...	768	...	516	...	256	...
	Naga Hills . . . . .	478	...	42,824	...	43,302	...	42,832	...	374	...	...	...	96	...	...	...
	Sibsagar . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	3,902	...	312,022	...	315,924	...	300,327	...	14,217	...	768	...	612	...	256	...
Baluchistan	Quetta-Fishin . . . . .	311	937	...	10,902	311	11,839	...	10,474	...	200	...	...	311	1,165	...	...
	Sibi-Khost . . . . .	276	1,036	3,945	27,308	4,221	28,344	3,890	20,772	12	5,674	...	...	319	1,898	...	...
	TOTAL	587	1,973	3,945	38,210	4,532	40,183	3,890	31,246	12	5,874	...	...	630	3,063	...	...
Bengal	Bankura-Raniganj . . . . .	11	2,020	4,058	897	4,099	2,917	2,972	200	819	1,304	220	...	88	1,418	...	147
	Birbhum " . . . . .	213	18	3,621	731	3,834	749	1,548	114	2,037	600	...	...	249	35	...	...
	Burdwan " . . . . .	159,187	34,834	3,654,752	595,553	3,813,939	630,347	3,315,277	203,838	324,618	392,400	10,346	4,064	163,698	30,081	1,355	6,820
	TOTAL	159,411	36,872	3,662,441	597,181	3,821,872	634,053	3,319,797	204,147	327,474	394,313	10,566	4,064	164,035	31,529	1,355	6,967

Bihar and Orissa	Bokaro-Ramgarh		1,312	762	819,401	110,742	819,713	111,504	814,934	93,557	3,750	9,538	...	7,709	1,029	70	219	4,814
		Hazaribagh	Giridih	9,774	2,281	597,746	206,359	607,520	212,673	583,291	96,559	8,781	53,758	...	53,681	16,058	8,645	39,961
	Manbhum	Jharia	26,042	7,936	152,326	28,508	178,368	36,444	136,532	23,776	15,710	4,144	779	1,478	23,347	7,046	1,119	...
		Raniganj	1,613,159	281,334	8,327,497	1,551,313	9,040,656	1,832,652	7,778,186	836,573	672,682	619,748	164,088	94,168	1,325,705	282,164	78,226	71,730
	Palamanu-Daltonganj		203,094	28,976	772,566	165,632	975,560	194,608	566,363	84,640	130,761	79,420	97,494	5,783	150,422	24,765	...	67,770
	Sambalpur-Hingir Bampur		731	...	32,691	3,899	33,422	3,899	27,555	3,899	5,037	...	...	...	830	...	...	...
	Sonthal Par-gansa	Jainty	...	...	61,822	15,455	61,822	15,455	61,704	...	118	15,455	...	...	...	...	...	...
		Raniganj	2,692	3,355	96,676	8,976	99,368	12,331	97,139	3,700	...	8,416	...	...	2,229	215	...	...
		418	1,099	11,576	2,439	11,994	3,538	5,230	657	3,006	685	...	...	3,753	1,996	...	...	
	TOTAL	1,857,222	329,746	10,871,301	2,093,358	12,728,523	2,423,104	10,071,544	1,143,920	839,245	791,464	262,366	162,819	1,555,978	324,901	119,525	144,814	
Central Provinces	Betul	...	...	190	20	190	20	...	...	40	20	...	...	150	...	...	...	
	Chanda	1,055	643	132,212	39,213	133,267	39,856	127,622	19,215	4,436	18,041	...	...	1,309	2,600	...	...	
	Chhindwara	2,438	1,102	370,194	79,117	372,627	80,319	301,401	49,218	4,348	27,102	...	...	5,878	8,809	...	...	
	Narsinghpur	242	1,529	68,656	20,967	68,998	22,496	64,093	17,476	4,765	1,309	...	...	40	3,711	...	...	
	Yeotmal	98	28	2,044	301	2,142	327	1,518	286	69	...	...	...	856	41	...	...	
	TOTAL	3,828	3,300	573,296	139,618	577,124	142,918	555,634	86,195	13,658	46,472	...	...	7,832	10,251	...	...	
Burma	Southern Shan States	...	...	40	260	40	260	40	30	...	6	...	...	...	294	...	...	
Panjab	Jhelum	...	4,515	2,218	48,421	2,218	52,936	1,118	46,602	1,100	2,415	...	...	...	3,919	...	...	
	Mianwali	76	1,074	1,555	10,297	1,631	11,371	1,340	10,478	...	...	...	...	291	898	...	...	
	Shahpur	...	1,024	371	4,880	371	5,404	371	4,125	...	117	...	...	...	1,162	...	...	
	TOTAL	76	6,613	4,144	63,098	4,220	69,711	2,829	61,200	1,100	2,532	...	...	291	5,979	...	...	
	GRAND TOTAL 1921	2,025,026	378,504	15,427,209	2,931,725	17,452,235	3,310,229	14,354,061	1,526,788	1,195,706	1,240,661	273,690	166,888	1,728,778	375,947	121,186	151,417	



## APPENDIX I—contd.

Table No. 3.  
Number of mines opened and closed during the year ending 31st  
December 1921.

Province.	District.	Number of mines opened.	Number of mines closed.
<b>A.—COAL.</b>			
BALUCHISTAN . . . . .	Sibi-Khost . . . . .	2	...
	Quetta-Pishin . . . . .	1	1
	<b>TOTAL</b> . . . . .	<b>3</b>	<b>1</b>
BENGAL . . . . .	Birbhum . . . . .	4	1
	Burdwan-Raniganj . . . . .	23	5
	<b>TOTAL</b> . . . . .	<b>27</b>	<b>6</b>
BIHAR AND ORISSA . . . . .	Hazaribagh { Girdih . . . . .	3	...
	{ Jharra . . . . .	1	...
	Manbhum { Jharra . . . . .	43	4
	{ Raniganj . . . . .	16	1
	Sonthal Parganas, Raniganj . . . . .	1	...
<b>TOTAL</b> . . . . .	<b>64</b>	<b>5</b>	
BURMA . . . . .	Southern Shan States . . . . .	2	1
CENTRAL PROVINCES . . . . .	Betul . . . . .	1	...
	Chanda . . . . .	...	1
	Chhindwara . . . . .	18	8
	<b>TOTAL</b> . . . . .	<b>19</b>	<b>9</b>
PANJAB . . . . .	Jhelum . . . . .	1	3
	Shahpur . . . . .	1	...
	<b>TOTAL (COAL)</b> . . . . .	<b>117</b>	<b>25</b>

APPENDIX I—*contd.*Table No. 3—*contd.*

Number of mines opened and closed during the year ending 31st  
December 1921—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
	<b>B.—MICA.</b>		
BIHAR AND ORISSA . . . . .	Gaya . . . . .	13	13
	Hazaribagh . . . . .	102	194
	Manbhum . . . . .	...	1
	Monghyr . . . . .	1	6
	<b>TOTAL</b> .	<b>116</b>	<b>214</b>
CENTRAL PROVINCES . . . . .	Balaghat . . . . .	...	1
MADRAS . . . . .	Kistna . . . . .	...	1
	Nellore . . . . .	18	29
	Salem . . . . .	...	1
	Nilgiris . . . . .	2	...
	<b>TOTAL</b> .	<b>20</b>	<b>31</b>
RAJPUTANA . . . . .	Ajmer-Merwara . . . . .	17	27
	<b>TOTAL (MICA)</b> .	<b>153</b>	<b>273</b>
	<b>C.—MANGANESE ORE.</b>		
CENTRAL PROVINCES . . . . .	Balaghat . . . . .	4	4
	Chhindwara . . . . .	...	2
	Nagpur . . . . .	...	2
	<b>TOTAL</b> .	<b>4</b>	<b>8</b>
MADRAS . . . . .	Vizagapatam . . . . .	...	4
	<b>TOTAL (MANGANESE)</b> .	<b>4</b>	<b>12</b>

APPENDIX I—*contd.*Table No. 3—*contd.*

Number of mines opened and closed during the year ending 31st  
December 1921—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
<b>D.—SLATE.</b>			
BIHAR AND ORISSA . . . . .	Monghyr . . . . .	...	3
<b>E.—LIMESTONE.</b>			
CENTRAL PROVINCES . . . . .	Jabalpur . . . . .	4	5
<b>F.—IRON ORE.</b>			
BURMA . . . . .	Mandalay . . . . .	...	1
	Northern Shan States . . . . .	1	1
	<b>TOTAL (IRON)</b> . . . . .	1	2
<b>G.—SALT.</b>			
PANJAB . . . . .	Jhelum . . . . .	...	1
<b>H.—APATITE.</b>			
BIHAR AND ORISSA . . . . .	Singhbhum . . . . .	1	...
<b>I.—GEMS (Rubies).</b>			
BURMA . . . . .	Katha . . . . .	...	2
<b>J.—COPPER ORE.</b>			
BIHAR AND ORISSA . . . . .	Singhbhum . . . . .	1	...
<b>K.—CLAY.</b>			
BIHAR AND ORISSA . . . . .	Bhagalpur . . . . .	...	1
DELHI . . . . .	Delhi . . . . .	3	2
<b>TOTAL (CLAY)</b> . . . . .		3	3

APPENDIX I—*concl.*Table No. 3—*concl.*

Number of mines opened and closed during the year ending 31st  
December 1921—*concl.*

Province.	District.	Number of mines opened.	Number of mines closed.
<b>L.—LEAD ORE.</b>			
CENTRAL PROVINCES . . . .	Drug . . . . .	1	1
<b>M.—TIN ORE.</b>			
BIHAR AND ORISSA . . . .	Hazaribagh . . . . .	...	1
BURMA . . . . .	Mergui . . . . .	4	3
	Tavoy . . . . .	4	1
	TOTAL (TIN) . . . . .	8	5
<b>N.—STEATITE.</b>			
BIHAR AND ORISSA . . . .	Bhagalpur . . . . .	1	1
<b>O.—BAUXITE.</b>			
BOMBAY . . . . .	Kaira . . . . .	...	1
<b>P.—CALCITE.</b>			
BIHAR AND ORISSA . . . .	Bhagalpur . . . . .	1	1
<b>Q.—GRAPHITE.</b>			
BIHAR AND ORISSA . . . .	Bhagalpur . . . . .	...	1
	GRAND TOTAL (ALL MINES) . . . . .	295	336

## APPENDIX I—concl'd.

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.	Manga- nese ore.	Mica.	Limestone	Salt.	Gold.	Copper ore.	Wol- fram.	Iron ore.	Chro- mite ore.	Tin ore.	Lead ore.	Silver.
	Tons.	Tons,	Cwt.	Tons.	Tons.	Troy ozs.	Tons.	Tons.	Tons.	Tons.	Tons	Tons.	Ozs.
1912 .	14,044,368	423,464	41,000	91,784	131,233	7,200	8,981	1,370	70,383	6	63	8	...
1913 .	15,486,318	637,301	43,640	71,350	138,540	11,019	3,639	1,378	98,371	3,414	87	14	...
1914 .	15,727,681	555,672	38,189	146,505	135,518	19,873	4,400	1,576	167,800	3,008	45	34	...
1915 .	16,352,480	379,172	24,063	64,170	144,770	24,320	8,010	1,072	126,017	1,465	14	7	612
1916 .	16,419,082	568,032	35,978	45,300	160,357	23,235	2,971	2,955	142,000	5,004	68	7	1,362
1917 .	17,326,384	497,052	35,800	83,340	153,542	21,091	20,106	3,066	178,303	17,266	162	...	1,281
1918 .	19,347,039	415,387	51,572	181,461	168,512	19,916	3,619	3,600	115,800	24,030	602	3	1,160
1919 .	21,759,727	420,194	41,063	166,810	174,974	11,191	32,760	2,905	101,322	14,007	701	24	753
1920 .	17,082,711	582,636	44,666}	161,340	181,092	12,645	22,107	1,783}	140,472	23,123	1,046	126,008	2,870,505
1921 .	18,358,934	284,254	20,470	281,252	123,084	10,108	32,560	894}	286,100	27,727	1,032	144,090}	3,555,640

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 1912 to 1921 in respect of coal mines under the Indian Mines Act, 1901 :—

YEAR.	Amount of coal raised.	Average number of persons working daily below and above ground.	Number of deaths below and above ground.	DEATH-RATES	
				Per 1,000,000 tons raised.	Per 1,000 per- sons working daily below and above ground.
1912 . . .	14,044,368	121,392	157	11.17	1.29
1913 . . .	15,486,318	193,042	185	11.95	1.39
1914 . . .	15,727,681	137,851	145	9.23	1.05
1915 . . .	16,352,480	145,537	166	10.15	1.14
1916 . . .	16,419,082	143,459	169	10.20	1.18
1917 . . .	17,326,384	153,688	168	9.41	1.06
1918 . . .	19,347,039	176,269	197	9.98	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

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

**Table No. I.**

List of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1921.

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>EXPLOSIONS OF FIRE-DAMP—(16 deaths).</b>						
1	28th January, 11 A.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway	(1) Nabi, (m.), 28, (2) Muhammad, (m.), 44, <i>Stone-cutters.</i>	Coal	One of the two deceased opened a locked safety-lamp in the face of a dip gallery, and caused the ignition of a small accumulation of fire-damp. Both men were severely burnt. Nabi was killed and Muhammad died after two days. Another man was slightly burnt and recovered.
2	28th February, 2-30 P.M.	Amlabad mine, Jamdoba P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	(1) Ahadali Meah, (m.), 33, (2) Heman Meah, (m.), 40, (3) Jumon Meah, (m.), 32, (4) Sukor Meah, (m.), 27, (5) Deva Tamli, (m.), 22, (6) Bishun Sing, (m.), 28, (7) Madari Meah, (m.), 26, (8) Chitamon Gope, (m.), 24, (9) Jaggunnath Rajwar, (m.), 40, (10) Pairag Rajwar, (m.), 42, (11) Bebari Rajwar, (m.), 36, <i>Stone-cutters.</i>	Coal	Whilst the deceased were at work at the bottom of a sinking shaft, 152 feet deep, an explosion of fire-damp occurred. They were so severely burnt that they all died within two days. Inspection and inquiry made. ( <i>See Report, page 8.</i> )
8	23rd March, 1 P.M.	Victoria mine, Kulti P. O., Bengal.	New Beerbhun Coal Co., Ltd.	Roni Korah, (m.), 28, <i>Coal-cutter.</i>	Coal	Deceased, carrying an open lamp, entered a gallery and ignited an accumulation of fire-damp. He was severely burnt and died eight days later. Inspection and inquiry made. ( <i>See Report, page 9.</i> )

APPENDIX II—cont d.

Fatal Accidents, 1921—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>EXPLOSIONS OF FIRE-DAMP—concl'd.</b>						
4	26th September, 10 A.M.	Satpukuria Kristoganj mine, Kalipahari P. O., Bengal.	Jagmohan Ramjibon Marwari.	Seik Bekab Ali, (m.), 30, Coal-cutter.	Coal	Deceased and two other persons entered an unventilated gallery, and ignited a small accumulation of fire-damp with an open light. Deceased sustained serious burns about the body to which he succumbed seven days later. The other two persons were slightly burnt. Inspection and inquiry made.
<b>FALLS OF ROOF AND SIDES.</b>						
(a) Falls of roof—(81 deaths).						
5	8th January, 4 A.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Barrakur Coal Co., Ld.	Chotan Meah, (m.), 35, Coal-cutter.	Coal	Deceased, with three other miners, went to work in a mine before the sirdar had made his examination. He commenced cutting coal in a gallery and was killed instantly by a mass of roof stone, 12' × 10' × 8', which fell from a height of 6 feet. Inspection and inquiry made. (See Report, page 9.)
6	26th January, 8-30 P.M.	Ekra Khas, Bansjora P. O., Bihar and Orissa.	Maharaja of Cossimbazar.	Budhon Bhuiya, (m.), 22, Coal-cutter.	Coal	Deceased was standing on the top of a barrel, and cutting side coal when a mass of roof coal, 7' × 5' × 2', fell from a height of 11 feet from two "slips" in the roof. He was killed instantly. Inspection and inquiry made.
7	26th January, 8-45 P.M.	Ledo Valley (Old West mine), Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Rahamat Makrani, (m.), 28, Labourer.	Coal	Deceased was loading coal in an underground chamber when a mass of stone weighing about 10 cwts., fell on him from a height of 25 feet inflicting injuries from which he died 2 hours later. Inspection and inquiry made.
9	27th January, 9 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	The Burma Finance and Mining Co., Ld.	Lam Hoo, (m.), 28, Tribute miner.	Wolfram	Whilst deceased was engaged in barring down rock in the face of a drive a fall of roof and side took place. He sustained fatal injuries. Inspection and inquiry made.
9	12th February, 5-30 A.M.	Kustore South mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	(1) Mahabir Meah, (m.), 45, (2) Bhunsi Meah, (m.), 50, (3) Lukan Manjhi, (m.), 25, Coal-cutters.	Coal	Whilst deceased with a number of other miners was engaged in extracting a pillar, the roof collapsed, over an area of 47' × 60' to a height of 30 feet. The pillar was crushed and the deceased entombed. Their bodies could not be recovered. Inspection and inquiry made. (See Report, page 10.)
10	17th February, 12-30 P.M.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways & Trading Co., Ld.	(1) Deonarayan, (m.), 25, Labourer; (2) Sarup Sing Rai, (m.), 25, "Opening-man."	Coal	Whilst persons were loading coal in an "opening" or chamber a mass of some 15 tons of coal fell without warning from a fault plane 12 feet above. Deonarayan was killed instantly. Sarup Singh Rai sustained injuries to which he succumbed seven weeks later. Another man was severely injured. Inspection and inquiry made.

11	25th February, 1 A.M.	Kalonta mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ltd.	Hon Kyan, (m.), 27, <i>Miner.</i>	Wolfram	Deceased with other coolies had, contrary to orders, gone to work at night in an adit which was being re-timbered. He was buried by a fall of earth and suffocated. Inspection and inquiry made.
12	1st March, 2 P.M.	Namdang mine, Marzherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Hanuman Sing, (m.), 30, <i>Labourer.</i>	Coal	Deceased was assisting in drilling shot holes in an underground chamber when a mass of coal fell upon him from the roof at a height of 10 feet. He was killed instantly. Inspection and inquiry made.
13	5th March, 1-30 P.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Kalla Kora, (f.), 17, <i>Coal-carrier.</i>	Coal	Deceased went through a fence and, whilst loading loose coal on the edge of a goaf, was killed instantly by a mass of roof stone, 12' x 16' x 1'9", which fell from a height of 7½ feet. Inspection and inquiry made.
14	11th March, 1 P.M.	Malkera mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	(1) Bhukan Bania, (m.), 26, <i>Stone-cutter</i> ; (2) Tikon Panday, (m.), 28, <i>Miners' Sirdar.</i>	Coal	While the roof was being dressed at the junction of two roads a fall of stone, measuring 15' x 15' x 3' thick, occurred. The deceased was killed on the spot and four other persons received slight injuries. Inspection and inquiry made.
15	11th March, 1-30 P.M.	North Bararee mine, Jharia P. O., Bihar and Orissa.	North Bararee Coal Co.	Bonu Mullick, (m.), 32, <i>Coal-cutter.</i>	Coal	Deceased was killed by a fall of roof, weighing about 1½ tons, which fell without warning from a concealed "slip" in the roof. Inspection and inquiry made.
16	16th March, 10-30 A.M.	Nilaripathra mine, Jharia P. O., Bihar and Orissa.	N. M. Choudhury & Co.	Dhani Dossal, (m.), 38, <i>Coal-cutter.</i>	Coal	Deceased left the part of the mine in which he had been told to work and passing through a fence went to another part, without orders, and with the intention of robbing coal from the side. A block of roof coal, 11 feet x 5½ feet x 5½ feet, fell upon him from a height of 9 feet, killing him instantly. Inspection and inquiry made.
17	20th March, 4 P.M. •	Jhakorkot mine, Dhak P. O., Panjab.	Northern India Coal Co.	Zaman, (m.), 45, <i>Coal-cutter.</i>	Coal	Deceased, whilst working in a "long wall" face, was killed by a mass of roof stone, 8' x 1' 6" x 9", which fell between two chocks in his working place. Inspection and inquiry made.
18	23rd March, 5 P.M.	Singrah mine, Mohuda P. O., Bihar and Orissa.	Singrah Coal Co., Ltd.	Khudu Mohato, (m.), 40, <i>Coal-cutter.</i>	Coal	Deceased with a female carrier went through a fence and commenced to rob a pillar when a mass of stone and coal, measuring 6' 6" x 7' x 2', thick, fell from a height of 7 feet. He was killed instantly and the woman received severe injuries. Inspection and inquiry made.
19	25th March, 9 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ltd.	Quan Fatt, (m.), 40, <i>Tribute Miner.</i>	Wolfram	Whilst engaged in barring down rock from the face of a working deceased was struck by falling rock. He sustained a compound comminuted fracture and died eleven days later.
20	31st March, 1-30 P.M.	Ena mine, Jharia P. O., Bihar and Orissa.	North-West Coal Co., Ltd.	Monda Chamar, (m.), 30, <i>Coal-cutter.</i>	Coal	While deceased was employed in extracting a pillar he was killed by a mass of roof coal, measuring 10' x 10' x 3' 6", which fell from a height of 8 feet. Inspection and inquiry made.
21	2nd April, 1-30 P.M.	Bestacolla mine, Jharia P. O., Bihar and Orissa.	New Beerbhun Coal Co., Ltd.	Sreecharan Chamar, (m.), 88, <i>Coal-cutter.</i>	Coal	Deceased was standing on a ladder boring a shot hole when a mass of roof coal, measuring 24' x 8' x 4', against which the ladder was placed, fell, taking the ladder and deceased with it. He was killed instantly. Inspection and inquiry made.
22	28th April, 3 A.M.	Nandi mine, Jamuria F. O., Bengal.	Adjai Coal Co., Ltd.	Mongal Kahar, (m.), 42, <i>Timber mistry.</i>	Coal	Whilst deceased was assisting to withdraw a prop from a goaf area an extensive fall of roof occurred. He was buried by the fall, and his body could not be recovered. Inspection and inquiry made.



APPENDIX II—contd.

Fatal Accidents, 1921—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>FALLS OF ROOF AND SIDES—contd.</b>						
<b>(a) Falls of roof—contd.</b>						
23	1st May, 12-10 P.M.	Jotajanaki mine, Toposi P. O., Bengal.	P. K. Chatterji & Bros.	Pani Mejhian, (f.), 35, Coal-carrier.	Coal	Deceased and another woman went through a fence into a disused gallery, and whilst they were loading coal there a piece of shale, weighing about half a ton, fell upon them from a height of 13 feet. Deceased was killed instantly and her companion injured slightly. Inspection and inquiry made.
24	3rd May, 11 P.M.	Loi-An central mine, Kalaw P. O., Southern Shan States, Burma.	Coalfields of Burma, Ltd.	Hema Lal, (m.), 30, Coal-cutter.	Coal	Whilst at work in the bottom of a sinking shaft, 26 feet deep, deceased was killed by a fall of stone from the roof. The shaft was timbered, but the stone fell from a "ship" at a joint below the timbering.
25	12th May, 8 A.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Sir K. C. Daga and others.	Kuthur Balla, (m.), 38, Trammer.	Coal	A mass of coal, 3' x 1' 6" x 1', fell without warning from the roof at a height of 11 feet at a point where two tram roads, 12 feet wide, met. Deceased, who was tramping a tub along the road at the time, was struck down and killed instantly. Inspection and inquiry made.
26	17th May, 12-30 A.M.	Chanch mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Bipan Lohar, (m.), 40, Coal-cutter.	Coal	Deceased left his appointed working place, and began to cut coal from the side of a pillar. A mass of coal, measuring 9' x 4' 6" x 1' 6", fell upon him from the side, causing injuries from which he died instantly. Inspection and inquiry made.
27	18th May, 4 A.M.	Mohpani mine, Mohpani P. O., Central Provinces.	Great Indian Peninsula Railway Co.	Phola <i>alias</i> Birbal Gond, (m.), 14, Coal-carrier.	Coal	Deceased went to sleep in a refuge hole on an underground road, and was killed by a mass of coal, 3' 3" x 2' 3" x 1' 6", which fell from a concealed "slip" at a height of 7 feet.
28	1st June, 7 P.M.	Sor Range mine, Quetta P. O., Baluchistan.	North-Western Railway.	Ismail, (m.), 40, Coal-cutter.	Coal	Whilst carrying coal in an underground gallery, deceased was killed by a fall of roof.
29	3rd June, 4 A.M.	Huntodih mine, Mohuda P. O., Bihar and Orissa.	Huntodih Coal Co., Ltd.	Kamini Harin, (f.), 22, Coal-carrier.	Coal	Deceased was loading coal in a gallery 9 feet high, when a mass of stone 11' x 5' x 14", falling from the convergence of two concealed "slips" in the roof, struck her, killing her instantly. Inspection and inquiry made.
30	8rd June, 9-30 A.M.	Namdang mine, Margherita P. O.,	Assam Railways and Trading Co., Ltd.	Badal Khatick, (m.), 41, Labourer.	Coal	Whilst deceased was loading coal in an "opening" or chamber he was killed by a mass of coal, weighing about 2 cwt., which fell without warning from the roof 20 feet above. Inspection and inquiry made.

31	5th June, 10 P.M.	Malkera mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	(1) Ramgulam Noonia, (m.), 26; (2) Deshi Noonia, (m.), 22, <i>Coal-cutters.</i>	Coal	The two deceased broke down a fence and entered a disused gallery, apparently for the purpose of robbing coal from the sides of pillars. An area of roof stone, 20' x 20' x 4", fell from a height of 8 feet 6 inches, killing one instantly and fatally injuring the other. Inspection and inquiry made.
32	9th June, 5 A.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Jiban Korah, (m.), 33, <i>Sirdar.</i>	Coal	Deceased and three other miners had been withdrawn from their working place by a Sirdar on account of the roof being dangerous. While the sirdar was absent arranging for timber, deceased went back to get his pick when an area of roof stone, 12' x 7' x 18" thick, fell from a height of 8 feet. He was killed instantly. Inspection and inquiry made.
33	2nd June, 2-30 P.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Khedan Teli, (m.), 23, <i>Coal-cutter.</i>	Coal	Deceased was casting back coal from a point a short distance behind his working face when a block of roof stone, 6' x 3' x 1' 6" thick, fell out at a "slip" and injured him so seriously that he died about 3 hours afterwards. Inspection and inquiry made.
34	27th June	Hermyingyi mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ld.	See To Hoi, (m.), 30, <i>Labourer.</i>	Wolfram	Deceased, unknown to any one and probably with the intention of stealing ore, went into an adit. He was killed by a fall of roof. Inspection and inquiry made.
35	20th June, 2 A.M.	Noonodih mine, Jamadoba P. O., Bihar and Orissa.	The Bengal Iron Co., Ld.	Balni Mahato, (m.), 40, <i>Coal-cutter.</i>	Coal	Deceased while extracting a pillar in a coal seam, 8 feet thick, was killed by a mass of coal, 16' x 8'—12' x 1' thick, and weighing 5 tons, which fell from the roof near a small "fault." Inspection and inquiry made.
36	6th July, 1 P.M.	Sikdardih mine, Giridih P. O., Bihar and Orissa.	Bayra Coal Association	(1) Gondo Dhobi, (m.), 50, <i>Stone-cutters' Sirdar</i> ; (2) Daho Dhobi, (m.), 40, <i>Stone-cutter.</i>	Coal	The two deceased were employed in getting down unsound roof stone in an underground gallery. They were breaking up some stone which they had just ripped down when they were struck down by a mass of stone measuring 4' x 1' 6" x 1' 6", which fell from a "slip" in the roof, 9 feet above. Gondo was killed on the spot, and Daho died shortly afterwards. Inspection and inquiry made.
37	7th July, 6-16 A.M.	Ekra mine, Bansjora P. O., Bihar and Orissa.	Maharajah of Cossimbazar	(1) Sibdol Mahato, (m.), 36; (2) Sukar Mahato, (m.), 32; (3) Poona Mahato, (m.), 27, <i>Coal-cutters.</i>	Coal	One of the deceased went through a fence into a goaf to load some fallen coal. A fall of roof coal took place which pinned him down. The other two went to his rescue, but a further fall of 10 tons of coal occurred, completely burying the three men. Inspection and inquiry made. (See Report, page 10.)
38	14th July, 2 P.M.	Gararia mine, Kusunda P. O., Bihar and Orissa.	Gopiram Ram Chandra	Ganesh Bhuiya, (m.), 35, <i>Coal-cutter.</i>	Coal	Deceased was standing on a stool and cutting roof coal in a gallery 7 feet high, when a block, 7' x 5' x 3½' thick, fell off at a "slip". Although he was to one side yet the stool was knocked over, and some of the coal fell upon his head and shoulders, killing him instantly. Inspection and inquiry made.
39	16th July, 11-30 A.M.	Kondwadih mine, Koirah Section, Kusunda P. O., Bihar and Orissa.	The East Indian Coal Co., Ld.	Paran Chamar, (m.), 35, <i>Sirdar.</i>	Coal	Deceased was a sirdar in charge of miners engaged in extracting a pillar. He went into a part which was fenced off and where there was fallen coal lying. Whilst he was testing the roof with a stick a piece of roof coal, 8 feet in diameter and 3 feet thick, fell on him from a height of 12 feet. He received injuries from which he died a few hours later. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1921—contd.

Serial num.	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) Falls of roof—contd.						
40	17th July, 5 A.M.	Janchari mine, Searsale P. O., Bengal.	Srimati Nistarini Dassi	(1) Matala Manjhi, (m.), 26; (2) Subda Manjhi, (m.), 25; (3) Pochu Manjhi, (m.), 30, Coal-cutters.	Coal	The deceased passed through a fence in order to obtain some loose coal on the goaf side of a pillar under extraction. A mass of roof coal, 7½' × 6' × 3', fell from a height of 15 feet, killing two men outright, and injuring three others, one of whom died within an hour. Inspection and inquiry made.
41	20th July, 11-30 P.M.	Dongar Chickli mine, Parasia P. O., Central Provinces.	Central Pesh Coal Co., Ld.	Goreylal Goalia, (m.), 28, Timberman.	Coal	Deceased was one of six timbermen who were repairing the roof on a haulage road at a point where a fall had taken place. Whilst so engaged another fall of roof took place, and the deceased was buried under the debris. Death was due to shock and suffocation. Inspection and inquiry made.
42	22nd July, 7-30 A.M.	Jealgora mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Gurbari Telini, (f.), 25, Coal-carrier.	Coal	A piece of roof coal, about 8' × 5' × 1', fell from a height of 7½ feet, and, striking deceased, who was passing under it at the moment, killed her on the spot. Inspection and inquiry made.
43	27th July, 5-0 A.M.	Jotejanaki mine, Toposi P. O., Bengal.	P. K. Chatterji & Bros.	Purna Mashu Bhar, (m.), 35, Coal-cutter.	Coal	Deceased, with two other miners, was employed in a dispillaring district, and was undercutting a pillar when a slab of stone, 7' × 4' × 6", fell from a height of 11 feet, killing him instantly. Inspection and inquiry made.
44	28th July, 4 P.M.	South Govindpur mine, Katrasgarh P. O., Bihar and Orissa.	South Govindpur Colliery, Ld.	Monger Meah, (m.), 20, Labourer.	Coal	Deceased was employed in a district where pillars in a seam, 5 feet thick, were being extracted. In throwing down two props which he had been carrying he knocked out another prop and brought about a fall of roof stone, 6' × 2' × 6", which killed him instantly. Inspection and inquiry made.
45	9th August, 4 A.M.	Ledo Valley (New West) mine, Margherita P. O., Assam.	Assam Railways Trading Co., Ld. and	Maundai Chetri, (m.), 25, "Opening man."	Coal	Deceased was working in an underground chamber when a piece of coal, 3' × 2' 6" × 1', fell from a height of 7 feet, killing him instantly. Inspection and inquiry made.
46	12th August, 2 P.M.	Nandi mine, Nandi P. O., Bengal.	Adjai Coal Co., Ld.	Mohar Chamar, (m.), 42, Coal-cutter.	Coal	Deceased was engaged in cutting coal on the corner of a pillar. Some roof coal fell in an adjoining goaf, and he passed through a fence to pick it up, when a piece of shale, 2' 6" × 2' × 9", fell on to him from a height of 17 feet. He sustained serious injuries and died a fortnight later. Inspection and inquiry made.

47	25th August, 9-30 A.M.	Seebpore mine, Charanpur P. O., Bengal.	Katras Jheriah Coal Co., Ld.	(1) Suphal Manjhi, (m.), 31; (2) Dasu Manjhi, (m.), 25; (3) Suka Manjhi, (m.), 23; (4) Bhatoo Kole, (m.), 14, <i>Coal-cutters.</i>	Coal	Three of the deceased were engaged in cutting roof coal near the edge of a large goaf when it came on 'weight.' A mass of roof coal, weighing about 30 tons, was released from between two parallel "slips," and fell suddenly from a height of 12 feet on to the deceased, two of whom were killed instantly. Another coal-cutter who was passing was killed on the spot, and Suphal Manjhi sustained serious injuries to which he succumbed two hours later. Inspection and inquiry made. ( <i>See Report, page 11.</i> )
48	2nd September, 8-30.	Ledo Valley (Old West) mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Charsomboy, (m.), 35, <i>Coal-tanner.</i>	Coal	Deceased was working in an underground gallery when a piece of coal, weighing about one ton, fell from the roof at a height of 6 feet, killing him instantly. Inspection and inquiry made.
49	12th September, 2 P.M.	Kantapahari mine, Assanul P. O., Bengal.	The Barrakur Coal Co., Ld.	Thakur Manjhi, (m.), 34, <i>Coal-cutter.</i>	Coal	Deceased and another miner left their working place and commenced to cut coal from the side of a pillar on a main level, when a piece of stone, weighing about 2 cwt. and measuring 3' x 1' x 9", fell on deceased from a height of 9 feet. He sustained serious injuries to which he succumbed a few hours later. Inspection and inquiry made.
50	15th September, 8-30 A.M.	Damudapur mine, Nandi P. O., Bengal.	The Bengal Coal Co., Ld.	Lokhoo Manjhi, (m.), 25, <i>Coal-cutter.</i>	Coal	Three coal-cutters were engaged in extracting a pillar in a coal seam, 8 feet thick. Deceased after cutting the coal sat under the newly exposed roof, when a triangular piece of stone, measuring 5' x 3' x 8" to 2" and weighing about 12 cwt., fell on him from a height of 5 feet. He sustained serious injuries to which he succumbed half-an-hour later. Inspection and inquiry made.
51	15th September, 3-30 P.M.	Sendra mine, Bansjora P. O., Bihar and Orissa.	Sendra Coal Co., Ld.	(1) Nayan Manjhi, (m.), 26; (2) Jugal Manjhi, (m.), 28; (3) Choorki Mejhian, (f.), 16, <i>Coal-carriers.</i>	Coal	The deceased left the gallery in which they had been told to work by the sirdar and went into a disused gallery the entrance of which was fenced. Whilst they were robbing coal from the side a mass of stone, weighing about 7 tons, and measuring 10' x 6' 6" x 3' 6", fell from between two 'slips' in the roof at a height of 10 feet. They were killed instantly. Inspection and inquiry made.
52	20th September, 4 A.M.	Ledo Valley (New East) mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gonia Oria, (m.), 25, <i>Trammer.</i>	Coal	Deceased was working in an underground gallery when a piece of coal 4' x 3' 6" x 2', fell from a height of 5 feet, inflicting injuries from which he died an hour later. Inspection and inquiry made.
53	1st October, 1-30 P.M.	Joba mine, Kalipahari P. O., Bengal.	Burrakur Coal Co., Ld.	Sukeo Kole, (f.), 25, <i>Coal-carrier.</i>	Coal	Deceased, inspite of being warned not to do so, walked under roof which was being dressed, when a piece of shale, measuring 5' x 3' x 9", and weighing 14 cwt., fell upon her from a height of 12 feet, killing her instantly. Inspection and inquiry made.
54	19th October, 11-30 A.M.	South Bulliari mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Raman Chamarin, (f.), 45, <i>Coal-carrier.</i>	Coal	Deceased and two other women were sitting down at the junction of four roads waiting for their miners to come to work. A piece of shaley coal, measuring 10' x 4' x 1', fell from the roof 10 feet above. Deceased was killed instantly and the other two women were seriously injured. Inspection and inquiry made.
55	20th October, 2-30 A.M.	Damudapur mine, Nandi P. O., Bengal.	The Bengal Coal Co., Ld.	Jales Mejhian, (f.), 20, <i>Labourer.</i>	Coal	Deceased was working in an underground gallery when a portion of the roof, weighing about 35 cwt., fell from a height of 12 feet, killing her instantly. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1921—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>FALLS OF ROOF AND SIDES—concl'd.</b>						
(a) Falls of roof—concl'd.						
56	28th October, 10 A.M.	Kongon mine, Kongon P. O., Assam.	Nazira Coal Co., Ltd.	Gopal Ghatwall, (m.), 35, Trammer.	Coal	Deceased was working in an underground gallery, when a piece of stone, 3' x 1' 6" x 1', fell on him from a height of 7 feet, inflicting injuries from which he died almost immediately. Inspection and inquiry made.
57	1st November, 8 P.M.	Sendra mine, Bansjora P. O., Bihar and Orissa.	Sendra Coal Co., Ltd.	Lakoo Turi, (m.), 24, Coal-cutter.	Coal	Deceased was dressing down some overhanging coal, when a piece of coal, 4' x 3' x 18', weighing about ½ ton, fell unexpectedly from a height of 6 feet. He was struck on the forehead and killed instantly. Inspection and inquiry made.
58	6th November, 12 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ltd.	Mun Key Atin, (m.), 32, Tribute miner.	Wolfram	Whilst deceased was engaged in timbering a tunnel he was killed by a fall of roof. Inspection and inquiry made.
59	18th November, 5 A.M.	Dumarkunda mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	(1) Lakhoo Bhuya, (m.), 30; (2) Ram Lal Bauri, (m.), 21, Prop-setters; (3) Bhabhi Baurin, (f.), 19, Coal-carrier.	Coal	The three deceased went through a fence into a disused gallery. A mass of roof, 15' x 10' x 2', fell from a height of 6 feet, and buried them. They were killed instantly. Inspection and inquiry made.
60	18th November, 10 P.M.	Haripur mine, Chora P. O., Bengal.	Baraboni Coal Concern, Ltd.	Budri Manjhi, (m.), 35, Coal-cutter.	Coal	Deceased passed through a fence and entered a disused underground gallery. A piece of coal, weighing 14 lbs., fell from a height of 10 feet, inflicting injuries to the right foot. He died of septic gangrene seven days later. Inspection and inquiry made.
61	17th November, 6-45 P.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ltd.	Pullaraj, (m.), 35, Labourer.	Lead ore	Whilst going into the mine through the main adit level deceased was struck by a fall of loose ground. He sustained a compound fracture of the right leg and died three months later.
62	19th November, 12 noon.	Dharmaband mine, Katrangarh P. O., Bihar and Orissa.	D. N. Ghosh & Bros.	Ram Kissan Lodh, (m.), 25, Stone-cutter.	Coal	Deceased was engaged in removing debris at a point where the roof of an incline had been blasted down, to give increased height. A piece of stone, measuring 11' x 11' 5", fell upon him from a height of 6½ feet. He was killed instantly. Inspection and inquiry made.
63	20th November, 1 P.M.	Namdang mine, Margherita P. O., Assam.	Assam Railway and Trading Co., Ltd.	Baiza Nath Koot, (m.), 35, Coal-filler.	Coal	Deceased was killed by the unexpected fall of a mass of roof coal, 30' x 14' x 7', in an "opening" or chamber.

64	30th November, 2 A.M.	Kurkurbarree mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Kaila Manjhi, (m.), 22, Coal-cutter.	Coal	Deceased was apparently sleeping in his working place, when a mass of stone, 14' x 4' x 15', fell from a height of 6 feet. He was struck on the head, and died almost immediately. Inspection and inquiry made.
65	7th December, 5 A.M.	Khost mine, Khost P. O., Balochistan.	North Western Railway	Ghulam, (m.), 40, Coal-cutter.	Coal	Deceased was driving a main level in a coal seam 5 feet thick, where 1½ feet of the shale roof was being taken down to make height. He undercut too far in the coal, and was killed by a fall of shale measuring 4' x 2½' x 1'.
66	20th December, 5 A.M.	Ledo-Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Burga Bahadur, (m.), 21, Coal-puller.	Coal	Deceased was killed by a fall of coal from the roof of an "opening" or "chamber."
67	24th December, 1-45 P.M.	Chanck mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Ramchand Mallick, (m.), 45, Coal-cutter.	Coal	Deceased was cutting coal from the roof of a gallery without orders, when a mass of coal, 7' x 7' x 2' 6", fell from a height of 7 feet 6 inches, on to him killing him instantly. Inspection and inquiry made.
68	26th December, 1) A.M.	Borrea mine, Sitarampur P. O., Bengal.	New Beerbhun Coal Co., Ltd.	Budhai Ahir, (m.), 25, Coal-cutter.	Coal	Deceased was testing the roof in an underground gallery when a mass of roof coal, weighing about 13 cwt., fell from a height of 12 feet, burying him and killing him instantly. Inspection and inquiry made.

(b) FALLS OF SIDES—(91 deaths).

69	1st January, 5 P.M.	South Belliari mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Sundri Mejhian, (f.), 56, Coal-carrier.	Coal	Deceased was loading a basket in her working place, when a block of side coal, weighing about 15 cwt., slipped down from the corner of a pillar and rolled over upon her, inflicting injuries from which she died 4 hours later. Inspection and inquiry made.
70	19th January, 1 A.M.	Scrampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Rupia Dusadhin, (f.), 35, Coal-carrier.	Coal	Deceased was loading coal near a pillar the side of which was supported by two sprags. The support proved to be insufficient, and a mass of side coal fell upon the deceased, causing fatal injuries.
71	21st January, 9 P.M.	Kungkha mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ltd.	Low Choo, (m.), 32, Labourer.	Iron ore	Deceased sustained fatal injuries by a fall of rock in a quarry.
72	27th January, 2-16 P.M.	Gopalichuck Head mine, Jharis P. O., Bihar and Orissa.	Gopalichuck Coal Co., Ltd.	Kedar Kora, (m.), 30, Coal-cutter.	Coal	Deceased passed through a fence in a quarry and commenced to rob coal from the sides which were overhanging. A mass of coal and stone, measuring 3' 8" x 1' 6" x 30', fell from a height of 9 feet, killing him instantly. Inspection and inquiry made.
73	29th January, 9 A.M.	East Bagdiggi mine, Jharis P. O., Bihar and Orissa.	East Bagdiggi Colliery Co.	(1) Robi Dhobi, (m.), 45; (2) Dukan Rajwar, (m.), 32; (3) Sadoo Ray, (m.), 25; Coal-cutters; (4) Poorki Rajwarin, (f.), 16; (5) Rosni Gorain, (f.), 18, Coal-carriers.	Coal	The deceased persons with seven others were engaged in cutting and carrying coal and stone in a quarry at the foot of an overhanging mass of roof stone and coal when a fall of stone and coal, 33' x 6' x 1' to 3 feet thick, suddenly occurred, killing them instantly. Inspection and inquiry made. (See Report, page 11.)

APPENDIX II—contd.

Fatal Accidents, 1921—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>(b) FALLS OF SIDES—contd.</b>						
74	29th January, 5 P.M.	Bandarchooa mine, Mugma P. O., Bihar and Orissa.	S. N. Bose . . . .	Badi Koiri, (m.), 30, Coal-cutter.	Coal	Deceased was cutting coal in a quarry below some overhanging masonry which was resting on the top of a coal seam 30 feet thick. A piece of the masonry, measuring 6' x 3' x 2', fell from a height of 10 feet, killing him instantly. Inspection and inquiry made.
75	20th February, 1-0 A.M.	Tikak Lower mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Lalsing Lama, (m.), 26, Tub-filler.	Coal	Deceased was working in an underground chamber when a mass of coal, weighing about a ton and a half fell, from the side of a pillar. Deceased sustained injuries from which he died ten minutes later. Inspection and inquiry made.
76	16th February, 7 A.M.	Bansdeopur mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ltd.	Pilla Chamar, (m.), 36, Coal-cutter.	Coal	Deceased left his working place and went to a place about 200 feet distant, where he took down a fence and commenced cutting coal from the side of a gallery 24 feet high. A block of coal, about 10 feet high x 5' x 2' thick, fell off the side and injured him so seriously that he died within a few hours. Inspection and inquiry made.
77	23rd February, 11 A.M.	Bhelatand mine, Sijua P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Sukar Turi, (m.), 28, Coal-cutter.	Coal	Deceased, with other miners, was extracting a pillar in a seam 6 feet high. He undercut the coal to a depth of 2' 9". with the result that a block of coal, measuring 2' x 1' 9" x 3' 6", fell on his head and killed him. Inspection and inquiry made.
78	24th February, 1 P.M.	Bararee mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co.	Chuni Mejhian, (f.), 22, Coal-carrier.	Coal	The husband of deceased was robbing coal from the side of a pillar, and deceased was loading the coal. A mass of coal, 8' x 8' x 2', fell from the side of the pillar, deceased sustained injuries to which she succumbed within an hour. Inspection and inquiry made.
79	19th March, 10 A.M.	Barora mine, Nowagarh P. O., Bihar and Orissa.	S. & J. Sarkar . . . .	Jungli Chamar, (m.), 22, Coal-cutter.	Coal	Deceased passed through a fence and went under some overhanging side coal either to steal soft coal or to shelter from the sun when a mass of coal, about 10' x 3' by 1½' thick, fell upon him from height of 6 feet, killing him instantly. Inspection and inquiry made.
80	19th March, 11 A.M.	Khirsado mine, Pench P. O., Central Provinces.	H. Verma & Munshi Kanhaiya Lall.	Sukla Pardhan, (m.), 14, Labourer..	Coal	Deceased undermined the side in a coal quarry, and was killed by a fall of overburden.
81	21st March, 2 P.M.	Sodepur (8 pit) mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ltd.	Tolu Teli, (m.), 45, Stone-cutter.	Coal	Deceased was engaged in dressing down coal on the side of a gallery. A piece of coal, 3' x 2' 6" x 1' 3", broke away from two concealed "slips" at a height of 11 feet. Deceased was struck by the falling coal and sustained injuries to the leg which caused death three days later. Inspection and inquiry made.

82	25th March, 3-30 P.M.	Toktwe mine, Karathuri P. O., Burma.	Ma Kyon . . .	Law Pah, (m.), 28, <i>Labourer.</i>	Tin ore .	Whilst at work in an open excavation deceased was killed by a fall of rock from a dump.
83	7-30 A.M.	Kurhurbaree mine, Giridih P. O., Bihar and Orissa.	E. I. Railway Co. .	Mangra Kole, (m.), 25, <i>Coal-cutter.</i>	Coal .	Deceased was employed in extracting a pillar of coal, 16 feet in height. There was a "slip" in the pillar and deceased had been told not to work in front of it, but to work from the end of the "slip." He disregarded these instructions and worked the coal parallel to the face of the "slip," with the result that a mass of coal, 5' x 5' x 3', came away and killed him. Inspection and inquiry made.
84	30th March, 4 A.M.	Fularibad mine, Jharia P. O., Bihar and Orissa.	Fularibad Coal Co., Ld. .	Kodan Kurmi, (m.), 22, <i>Coal-cutter.</i>	Coal .	Deceased entered a fenced-off area to rob coal from the corner of a pillar. He set free at a "slip" a mass of coal, 6' x 5' x 3' thick, which fell upon him and killed him instantly. Inspection and inquiry made.
85	31st March, 2-30 P.M.	Bagdi-gi mine, Jharia P. O., Bihar and Orissa.	C. J. Smith . . .	Phucha Manjbi, (m.), 35, <i>Coal-cutter.</i>	Coal .	Deceased was employed in cutting floor coal. He was robbing the corner of a pillar near his working place, when a mass of coal, weighing about 6 cwt., fell from a height of 11 feet. He received injuries from which he died next day. Inspection and inquiry made.
86	8th April, 1-30 P.M.	Bokaro Jharia mine, Jamuniatand P. O., Bihar and Orissa.	Agarwalla Brothers .	Bishoo Roy, (m.), 28, <i>Coal-cutter.</i>	Coal .	Deceased was working in a coal quarry on the bank of a river where the roof of the coal seam consists of "weathered" rock which was overhanging. The upper portion of the coal seam was also overhanging. While he was loading coal a piece of coal, weighing about 80 lbs., fell upon him from a height of eighteen feet. He received injuries from which he died shortly after. Inspection and inquiry made.
87	9th April, 7-15 A.M.	Bhulanbarari mine, Jamadoba P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ld.	Makhan Bauri, (m.), 26, <i>Coal-cutter.</i>	Coal .	Deceased was employed in quarrying pillars of coal formed originally by underground mining. While he was cutting the coal forming the roof of an old gallery the roof collapsed. He fell into the gallery below, and was killed instantly. Another coal-cutter received slight injuries. Inspection and inquiry made. ( <i>See Report, page 12.</i> )
88	14th April, 10-30 A.M.	Chinchuria mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Banwari Kole, (m.), 20, <i>Pump attendant.</i>	Coal .	Deceased was working on a hand pump at the bottom of a cutting, twenty feet deep. A mass of earth, 34' x 17' x 4' 6", fell from the side without warning. Part of this earth fell on deceased killing him instantly. Inspection and inquiry made.
89	16th April, 2 P.M.	Murwara mine, Katni P. O., Central Provinces.	Seth Tebmurus Cowasji .	Ratan Katwar, (m.), 40, <i>Contractor.</i>	Limestone .	Deceased was killed by a fall of side in a quarry.
90	19th April, 6 P.M.	Karathuri mine, Mergui P. O., Burma.	Ma Me . . .	Sin Yu., (m.), 30, <i>Labourer.</i>	Tin ore .	Deceased was killed by a fall of side whilst at work in an open cut.
91	25th April, 2 P.M.	Kachkuri mine, Ramtek P. O., Central Provinces.	Bansilal, Abirohand Mining Syndicate.	Wallombi, (m.), 40, <i>Labourer.</i>	Manganese ore.	Deceased was killed by a fall of overburden in an open working. Inspection and inquiry made.
92	27th April, 10-30 P.M.	Loyabud mine, Banaajora P. O., Bihar and Orissa.	Burrakur Coal Co., Ld. .	Budhani Khuini, (f.), 28, <i>Coal-carrier.</i>	Coal .	Deceased was filling a basket at the face of a quarry when some soft coal, weighing about 3 cwt., fell off the face at a cleat from a height of about six feet. Her neck was broken and she died almost instantly. Inspection and inquiry made.



APPENDIX II—contd.

Fatal Accidents, 1921—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>(b) FALLS OF SIDES—contd.</b>						
93	28th April, 6-30 A.M.	Mosaboni mine, Rakha mines P. O., Bihar and Orissa.	Cordoba Copper Co., Ltd.	Ram, Bhuiya, (m.), 18, <i>Labourer.</i>	Copper ore.	Deceased was killed by a fall of side in a prospecting shaft, twenty-five feet deep. Inspection and inquiry made.
94	28th April, 2 P.M.	Katras mine, Katras P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	Sona Manjhi, (m.), 14, <i>Coal-cutter.</i>	Coal.	While deceased was cutting coal from a barrier in a seam 9 feet 6 inches thick, he was killed by a mass of side coal, 18' x 9' x 9', which fell from a "slip." Inspection and inquiry made.
95	10th May, 5-45 A.M.	Alkusa South mine, Kusunda P. O., Bihar and Orissa.	Ravigunge Coal Association, Ltd.	(1) Sanki Meah, (m.), 25, <i>Coal-cutter</i> ; (2) Anwari Meah, (m.), 18 ; (3) Parna, (f.), 15, <i>Coal-carriers.</i>	Coal.	Whilst the three deceased were sleeping in a gallery in the mine a mass of side coal, measuring 15' x 8', fell upon them from a height of 10 feet. They were killed instantly. Inspection and inquiry made. ( <i>See Report, page 12.</i> )
96	10th May, 2-30 P.M.	Bansdeopur mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ltd.	(1) Barhan Roy, (m.), 35 ; (2) Etwari Roy, (m.), 25, <i>Coal-cutters.</i>	Coal.	The deceased, with another coal-cutter, against orders, went inside a fenced area where the timber had been withdrawn to allow the top coal to fall. While engaged in loading fallen coal a mass of coal, weighing from 60-70 tons, fell from a height of ten feet. Barhan was killed instantly and Etwari died 10 weeks later. The other man was severely injured. Inspection and inquiry made.
97	10th May, 4-30 P.M.	Jamgram mine, Asansol P. O., Bengal	Burrakur Coal Co., Ltd.	Bhusan Kumar, (m), 28, <i>Coal-cutter.</i>	Coal.	Deceased had undercut the coal from the side of a quarry, leaving the overburden overhanging. About two tons of the overburden suddenly fell on to deceased, killing him instantly. Inspection and inquiry made.
98	16th May, 11-30 A.M.	Sugi mine, Dumchanch P. O., Bihar and Orissa.	F. F. Chrestien & Co., Ltd.	Chito Kandoo, (m.), 25, <i>Labourer.</i>	Mica.	Deceased was employed in picking mica from a dump. He was buried by a mass of debris which fell from the side of a hole, 5 feet deep, excavated in the dump. Death was due to suffocation. Inspection and inquiry made.
99	26th May, 3 P.M.	Khas Jharia mine, Jharia P. O., Bihar and Orissa.	Khas Jharia Colliery Co., Ltd.	Katkani Roy, (f.), 26, <i>Coal-carrier.</i>	Coal.	After attempting and failing by undercutting to bring down a large mass of coal from a "slip," deceased's husband commenced working on an adjacent pillar. Some time later while deceased was loading her basket a mass of coal, weighing about 3 tons, fell. Deceased received injuries from which she died three hours later. Inspection and inquiry made.

100	4th June, 7-30 P.M.	Bagdigri mine, Jharia P. O., Bihar and Orissa.	Villiers Limited	(1) Premu Gorai, (m.), 25, Coal-cutter; (2) Khetu Gorain, (f.), 22, Coal-carrier.	Coal	Whilst the two deceased were sitting down in a narrow gallery, 26 feet high, and waiting for the sinder to show them their working place a mass of some seven cwt. of coal fell from a "slip" in the side at a height of 20 feet. The woman was killed instantly, and the man received injuries from which he died some hours later. Inspection and inquiry made.
101	5th June, 2-30 P.M.	Khasra No. 1219, mine, Katni P. O., Central Provinces.	Chakori Lal Pathak	Phuliya, (f.), 13, Labourer.	Limestone	A piece of limestone fell from a stack on the edge of a quarry, rolled to the bottom of the quarry, and killed deceased by striking her on the head.
102	16th June, 10-30 A.M.	Real Kajora mine, Ondal P. O., Bengal.	Real Kajora Coal Co.	Kashi Nath Bauri, (m.), 33, Sinker.	Coal	Deceased was loading up debris which had fallen from a cavity in the side of a shaft. A mass of earth, weighing about 1½ tons, fell without warning from the cavity, and buried him. Death was caused by suffocation. Inspection and inquiry made.
103	17th June, 2-30 P.M.	Karmatand mine, Nudkhurki P. O., Bihar and Orissa.	Sreeram Coal Co.	Bigon Manjhi alias Bondhn Manjhi, (m.), 40, Coal-cutter.	Coal	Deceased was robbing the corner of a pillar when a mass of coal, weighing about 3 tons, fell from a height of 10 feet. He was killed instantly. Inspection and inquiry made.
104	18th June, 9-30 A.M.	Faridpore mine, Charanpur P. O., Bengal.	Poniat Coal Concern	Pana Bauri, (m.), 31, Coal-cutter.	Coal	Deceased was engaged in extracting a pillar of coal, 18 feet in height, and was levering coal from the side of the pillar, when a mass of coal, weighing about half a ton, fell over on to him, inflicting injuries from which he died on the following day. Inspection and inquiry made.
105	23rd June, 5 P.M.	Northern mine, Nowagarh P. O., Bihar and Orissa.	Northern Coal Co., Ld.	Ajnon Mahato, (m.), 35, Coal-cutter.	Coal	Whilst deceased was robbing the side of the gallery in which he worked, he was injured by a mass of coal which fell from a concealed "slip" at a height of 7 feet. He died three days later. Inspection and inquiry made.
106	3rd July, 11 A.M.	Kalonta mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ld.	Lai Sein Sem, (m.), 35, Labourer.	Wolfram	Deceased was killed by a fall of side in an open working.
107	5th July	Foley mine, (Lense No. 58), Sharich P. O., Baluchistan.	Baluchistan Coal Co., Ld.	Sanedin, (m.), 25, Labourer.	Coal	Whilst deceased was assisting a carpenter to fix timbers for the support of an underground gallery, a fall of side took place. He was struck by the falling stone and sustained injuries which terminated fatally within the hour.
108	14th July, 2-30 A.M.	Bhulanbararee mine, Jharia P. O., Bihar and Orissa.	The Bhulanbararee Coal Co., Ld.	Mnlati Mejhian, (f.), 18, Coal-carrier.	Coal	Deceased was killed by a mass of coal, which fell without warning from the side of a gallery at a height of five feet. Inspection and inquiry made.
109	15th July, 11-30 A.M.	Bhalgora mine, Jharia P. O., Bihar and Orissa.	The Bhalgora Coal Co., Ld.	(1) Gangia Kaharin, (f.), 36; (2) Somia Kaharin, (f.), 40, Coal-carriers.	Coal	A miner was engaged in dressing down overhanging coal on the side of a pillar. The two deceased, contrary to orders and in spite of repeated warnings, went into the place to load coal. A mass of coal, 9' x 3' x 2', fell upon them killing them instantly. Inspection and inquiry made.
110	21st July 10 A.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Bisscardass Daga and M. B. Dadabhoy.	Samdhi Kistana, (m.), 40, Coal-cutter.	Coal	Whilst engaged in undercutting in preparation for blasting, deceased exposed an unsuspected "slip." A mass of coal fell upon him, killing him instantly. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1921—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>FALLS OF ROOF AND SIDES—contd.</b>						
<i>(b) Falls of sides—contd.</i>						
111	22nd July, 12 noon.	Keshoram Satgram mine, Raniganj P. O., Bengal.	Keshoram Poddar & Co.	Malindu Bauri, (m.), 14, Labourer.	Coal	Deceased, with two other sinkers, was engaged in dressing down the sides of a sinking shaft, 46 feet deep, when a piece of coal, weighing about 3 cwt., fell from the side through a vertical distance of 2 feet. A prop, 11 feet long, which was standing on the bottom and leaning against the side of the shaft, was struck by the coal and overturned, striking the deceased on the head. He sustained injuries to which he succumbed on the following day. Inspection and inquiry made.
112	29th July, 3 P.M.	South East Baraboni mine, Charampur P. O., Bengal.	Maharaja of Cossimbazar	Bhatar Manjhi, (m.), 27, Coal-cutter.	Coal	Deceased entered a fenced area at the edge of a goaf to obtain some fallen coal. A mass of coal, weighing about ten tons, fell away from the side of a dyke. A portion of the coal struck deceased and buried him. He was killed instantly. Inspection and inquiry made.
113	7th August, 2 A.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Haru Mesh, (m.), 32, Coal-cutter.	Coal	Deceased was engaged after blasting in dressing down overhanging coal in the lower portion of a coal seam when the coal suddenly came away in an unexpected direction and knocked him off his ladder. Some of the coal fell upon him killing him instantly. Inspection and inquiry made.
114	6th August, 9-30 A.M.	Yemon mine, Mergui P. O., Burma.	Mergui Tin Dredging Co., Ltd.	Lee Joon Hteng, (m.), 60, Tribute-miner.	Tin ore	Deceased was killed by a fall of ground from the side of a "tailings" ditch. It was presumed that he had undermined the side whilst prospecting for ore.
115	14th August, 2 A.M.	Joba mine, Kalipahari P. O., Bengal.	Burrakur Coal Co., Ltd.	Sew Lal Kurmi, (m.), 20, Coal-cutter.	Coal	Deceased was holding a light for a miner who was dressing loose coal from the side of a pillar. A piece of coal, 6' x 4' x 1' was levered down. In falling it broke into several large pieces. One piece rolled over pinning deceased by the leg. Deceased sustained injuries from which he died thirty-seven hours later. Inspection and inquiry made.
116	19th August, 1 P.M.	Dhansar mine, Jharia P. O., Bihar and Orissa.	Dhansar Coal Co.	Agyain Chamur, (m.), 35, Coal-cutter.	Coal	Deceased left his working place, and passed through a fence into a disused part of the mine, and whilst robbing coal there he was killed by a mass of side coal, 8' x 7' x 1' 6," which fell away from a "slip." Inspection and inquiry made.
117	23rd August, 3 P.M.	Rajhara mine, Rajhara P. O., Bihar and Orissa.	The Bengal Coal Co., Ltd.	Bhagawati Noonis, (m.), 30, Coal-cutter.	Coal	Deceased whilst robbing the side of a pillar was killed by a fall of side coal.
118	29th August, 11-30 A.M.	Industry mine, Jharia P. O., Bihar and Orissa.	Industry Coal Co., Ltd.	Kasua Bauri, (m.), 21, Engine khalsi.	Coal	Deceased who was employed on the surface went underground and commenced to rob a pillar. He undercut the coal and caused a mass of coal, weighing 3 tons, to fall upon himself. He was killed instantly. Inspection and inquiry made.
119	8th September, 3 P.M.	Bhulanbararee mine, Patherdih P. O., Bihar and Orissa.	Bhulanbararee, Coal Co., Ltd.	(1) Mangli Mejhian, (f.), 15; (2) Suki Mejhian, (f.), 14.	Coal	The deceased were carrying coal out of a quarry when the pathway subsided into an old gallery below. They were buried by the debris and when their bodies were recovered two hours later life was extinct. Inspection and inquiry made. (See Report, page 12.)

92

120	15th September, 2 A.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ltd.	Kyan Si Ye, (m.), 30, <i>Miner.</i>	Lead ore	Whilst deceased was sleeping in a stope, he was killed by a mass of ore, weighing about 50 lbs., which fell from a height of 3 feet. Inspection and inquiry made.
121	16th September, 1-30 P.M.	Pandeybera mine, Jharis P. O., Bihar and Orissa.	Burma Coal Co.	(1) Joran Kora, (m.), 40, (2) Kanai Kora, (m.), 32, <i>Coal-cutters</i> ; (3) Rodane Kora, (f.), 34; (4) Julia Kora, (f.), 25; (5) Kali Sardarin, (f.), 35, <i>Coal-carriers.</i>	Coal	The deceased were engaged in cutting and carrying coal from the floor of a gallery 35 feet in height when a mass of coal, weighing about 200 tons, fell from a "slip" on one side of the gallery. They were buried and killed instantly. Inspection and inquiry made.
122	19th September, 10-30 A.M.	Kalonta mine, Tavoy P. O., Burma.	Burma Finance & Mining Co., Ltd.	Lee Htyain, (m.), 44, <i>Labourer.</i>	Wolfram	Whilst engaged in sluicing operations, deceased was killed by a fall of side in an open cut.
123	21st September, 6-30 P.M.	North Goneshpur mine, Nowagarh P. O., Bihar and Orissa.	C. A. Forbes	(1) Dinoo Hari, (m.), 20; (2) Ramjoy Hari, (m.), 30, <i>Coal-cutters</i> ; (3) Rojony Harini, (f.), 16, <i>Coal-carrier.</i>	Coal	The deceased left their working places at the end of the shift, and went through a fence into old workings to rob coal. They had filled only two baskets when a mass of coal, 15' x 8' x 4', weighing 17 tons, fell from the side of a pillar. They were killed instantly. Inspection and inquiry made.
124	23rd September, 6 A.M.	Jharis Khas mine, Jharis P. O., Bihar and Orissa.	Standard Coal Co., Ltd.	Moalla Loathe, (m.), 25, <i>Coal-cutter.</i>	Coal	While deceased was on a ladder taking down some loose overhanging coal, which remained after a shot had been fired, the ladder slipped and he fell to the ground. At the same time a piece of coal which he had been levering fell on top of him causing injuries from which he died 6 hours later. Inspection and inquiry made.
125	23rd September, 12-30 P.M.	Benahir mine, Jharis P. O., Bihar and Orissa.	Standard Coal Co., Ltd.	Nisado Mallick, (f.), 16, <i>Coal-carrier.</i>	Coal	After a shot had been fired in the corner of a new gallery deceased was filling away the fallen coal when a mass of overhanging coal, weighing about 5 tons, fell on her. She received injuries from which she died a few hours later. Inspection and inquiry made.
126	24th September, 6-55 A.M.	Kathe mine, Mogok P. O., Burma.	Burma Ruby Mines, Ltd.	Aik Ho, (m.), 26, <i>Labourer.</i>	Rubies	Deceased was killed by a fall of side in an open working.
127	24th September, 11 A.M.	Daha mine, Jamai P. O., Central Provinces.	Mathura Prasad Motilall & Co.	Giansa (m.), 20, <i>Coal-cutter.</i>	Coal	Deceased attempted to undermine an irregular pillar of coal and stone in a quarry. A piece of stone, 3' x 2' x 2', fell upon him, causing fatal injuries. Inspection and inquiry made.
128	1st October, Noon.	Suratar Sonalibad mine, Jharis P. O., Bihar and Orissa.	Ramjash Agarwala	Chamu Keot, (m.), 30, <i>Coal-cutter.</i>	Coal	A piece of coal, 4' x 1'8" x 1' fell from the side of a gallery from a height of 20 feet, and a portion of it struck deceased on the head and back causing injuries from which he died two hours later. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1921—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) FALLS OF SIDES—contd.						
129	2nd October, 10 A.M.	Awadaung mine, Mergui P. O., Burma.	J. F. Leslie . . . .	Bighor, (m.), 25, Labourer.	Tin ore	Deceased was killed by a fall of side in an open-cut.
130	3rd October, 1 P.M.	Dhorakola mine, Ganwan P. O., Bihar and Orissa.	Banarasi Prosad Chowdhary.	(1) Bisni Turin, (f.), 14;  (2) Chomni Turin, (f.), 12, Labourers.	Mica	The deceased were loosening and cleaning up debris at the foot of the side of a quarry, when a piece of schist, measuring 3' x 2' 6" x 1", fell from a "slip" from a height of 6 feet on to them. Bisni Turin was killed on the spot, and Chomni Turin sustained serious injuries to which she succumbed a few hours later. Inspection and inquiry made.
131	20th October, 10-30 A.M.	Kalithan Suratar mine, Jharia P. O., Bihar and Orissa.	K. B. Seal & Sons . . . .	Jotsna Ghatwalin, (f.), 35, Coal-carrier.	Coal	While four women were loading coal which had been blasted down from a pillar under extraction, a mass of coal, 9' x 9' x 1' thick, fell from a "slip." Deceased was struck down and died immediately after being extricated. Another of the women received severe injuries. Inspection and inquiry made.
132	9th November, 2 P.M.	Benahir mine, Jharia P. O., Bihar and Orissa.	The Standard Coal Co., Ltd.	Bhadi Baurin, (f.), 35, Coal-carrier.	Coal	Deceased worked in a pillar extraction area, and was filling a basket with coal, when a piece of coal, measuring 15" x 10" x 10", fell off the side of a pillar from a height of 20 feet and struck her on the head. She was killed instantly. Inspection and inquiry made.
133	11th November, 4 P.M.	Khost mine, Khost P. O., Baluchistan.	North-Western Railway .	Feroz, (m.), 14, Propman.	Coal	Whilst deceased was engaged in timbering a long-wall face in a steeply inclined coal seam the floor of the seam slipped, carrying away the timber. Deceased fell into the goaf and was buried. He was suffocated.
134	12th November, 11 A.M.	Acehalpur mine, Nandi P. O., Bengal.	Hariladih Coal Co., Ltd. .	Kaman Bauri, (m.), 32, Sinker.	Coal	Deceased was working in a pit bottom with 4 other persons when a triangular piece of stone, 2' x 3' to 6" x 3', fell from a "slip" in the side of the shaft about 12 feet from the bottom. He was struck on the head and killed instantly. Inspection and inquiry made.
135	18th November, 1-30 P.M.	Budruchuck mine, Sijua P. O., Bihar and Orissa.	Budruchuck Coal Mining Co., Ltd.	Salga Manjhi, (m.), 30, Coal-cutter.	Coal	Deceased was engaged in cutting coal from the side of a pillar to permit of the straightening of a tram line. He undercut too far, and a wedge-shaped piece of coal, 8' x 6' x 2', weighing 1½ tons, fell upon him from a height of 9 feet. He received injuries from which he died 24 hours later. Inspection and inquiry made.
136	25th November, 4-30 P.M.	Bararee mine, Jharia P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	(1) Rabni Korini, (f.), 15; (2) Nidu Baurin, (f.), 18, Coal-carriers.	Coal	The deceased were loading coal shortly after a shot had been fired. A piece of coal, 4' x 3' x 2', weighing 10 cwt., fell from a height of 16 feet, and rolling from the top of a heap of loose coal, struck the deceased, crushing them against the side of a pillar. One of the deceased was killed instantly, and the other died shortly afterwards. Inspection and inquiry made.

137	2nd December, 5-30 P.M.	Jeaigora No. 2 Pit, mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	(1) Somar Meah, (m.), 16, Stone-cutter; (2) Madan Meah, (m.), 36, Sirdar.	Coal	The deceased were engaged in cleaning out the undercut made by a coal-cutter, when a mass of coal, 12' x 6' x 4', weighing 10 tons, fell from the side. The deceased were seriously injured and died two hours later. Inspection and inquiry made.
138	12th December, 11 A.M.	Shampur mine, Niranchatti P. O., Bihar and Orissa.	S. B. Chatterjee	Rajo Gor, (f.), 30, Coal-carrier.	Coal	Deceased was working in an open cut, when a mass of earth, 8' x 2' x 2', fell upon her from a height of 3 feet. She sustained injuries to the head and died almost immediately. Inspection and inquiry made.
139	23rd December, 12 noon.	Kalimati mine, Kamerdubi P. O., Bihar and Orissa.	Patel Bros. & Co.	Mirja Manjhi, (m.), 35, Coal-cutter.	Coal	Deceased and another miner were sitting under some overhanging coal at the side of a quarry when a mass of coal weighing about 10 cwt., fell from a height of 8 feet, inflicting injuries to deceased which proved fatal and minor injuries to the other man. Inspection and inquiry made.
140	24th December, 4-50 P.M.	Kalythan Angarpathra mine, Katrasgarh P. O., Bihar and Orissa.	Mukberji and Dutt	Anachi Bhuiyan, (f.), 18, Coal-carrier.	Coal	Deceased was loading coal in a quarry, when a piece of coal, 4' x 2' x 1', fell from a height of 5 ft. She was fatally injured and died an hour later. Inspection and inquiry made.

IN SHAFTS—(17 deaths).

IN SHAFTS—ROPES AND CHAINS BREAKING—  
(7 deaths).

141	5th August, 10-30 A.M.	Bhalgora mine, Jharis P. O., Bihar and Orissa.	Bhalgora Coal Co., Ltd.	(1) Bhadaï Shaw, (m.), 38; (2) Kajani Chamar, (m.), 14, Stone-cutters.	Coal	While a bucket containing water was being raised in a shaft, 365 feet deep, an overwind took place. The detaching hook acted, but the link attaching the bucket chains to the hook broke. The bucket dropped to the bottom where 8 persons were at work. The two deceased sustained fatal injuries. Inspection and inquiry made.
142	12th August, 2 P.M.	Chancl mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	(1) Mohan Kumar, (m.), 28; (2) Lochan Meah, (m.), 26, Sinkers.	Coal	The deceased were working at the bottom of a sinking shaft, 525 feet deep. Owing to the breaking of a winding rope, a loaded bucket fell a distance of 500 feet, killing Mohan instantly and inflicting injuries to Lochan from which he died a few hours later. Inspection and inquiry made.
143	17th September, 4-30 A.M.	Chancl mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	(1) Choa Hazra, (m.), 49; (2) Jhabon Hazra, (m.), 28, Sinkers.	Coal	The two deceased and seven other sinkers were working at the bottom of a sinking pit 540 feet deep. Water was being raised in a bucket. When 40 feet from the top the detaching hook failed and the bucket fell to the bottom and on to the deceased. Choa Hazra was killed instantly, and Jhabon Hazra sustained serious injuries to which he succumbed shortly after. Inspection and inquiry made.
144	28th September, 8 P.M.	Hatgarooi mine, Sitarampur P. O., Bengal.	Burrakur Coal Co., Ltd.	Lakhan Kora, (m.), 30, Onsetter.	Coal	Whilst deceased was being lowered in a cage at a shaft, 200 feet deep, the winding rope broke and the cage, which was about 45 feet from the top of the shaft, fell to the bottom, killing him instantly. Inspection and inquiry made.

IN SHAFTS—WHILST ASCENDING OR DESCENDING  
BY MACHINERY—(1 death).

145	22nd April, 11-15 A.M.	Phularitand mine, Katrasgarh P. O., Bihar and Orissa.	Phularitand Coal Co., Ltd.	Takoon Telli, (m.), 22, Sinker.	Coal	Whilst deceased was being raised in a sinking shaft, 85 feet deep, he lost hold of the rope and fell to the bottom, a distance of 25 feet. He received injuries from which he died a few hours later. Inspection and inquiry made.
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APPENDIX II—contd.

Fatal Accidents, 1921—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>IN SHAFTS—FALLING INTO THE SHAFT FROM THE SURFACE—(3 deaths).</b>						
146	31st May, 7-30 P.M.	Patmohna mine, Sitarampur P. O., Bengal.	Patmohna Collieries, Ltd.	Shukri Baldarin, (f.), 30, Labourer.	Coal	Deceased was drawing water from an old shaft in the dark. She slipped and fell into the shaft, and was drowned. Inspection and inquiry made.
147	2nd October, 4-30 P.M.	Mosaboni mine, Bakha Mines P. O., Bihar and Orissa.	Cordoba Copper Co., Ltd.	Chinappa, (m.), 24-25, Miner.	Copper ore	Whilst at work at the top of a prospecting shaft, 110 feet in depth, deceased fell into the shaft and was killed. Inspection and inquiry made.
148	3rd December, 2-15 A.M.	Shampur mine, Mugma P. O., Bihar and Orissa.	Shampur Coal Co., Ltd.	Phandi Mahata, (m.), 35, Banksman.	Coal	During the night shift, deceased, omitted to close the gate at the top of a winding shaft. He fell down the shaft, a distance of 113 feet and was killed instantly. Inspection and inquiry made.
<b>IN SHAFTS—FALLING FROM PART OF THE WAY DOWN—(3 deaths).</b>						
149	16th April, 11 A.M.	Korrabad Nodia mine, Panuria P. O., Bengal.	Trans Adjai Collieries, Ltd.	Amiruddin Meah, (m.), 20, Mason.	Coal	Deceased, with four others, was working on a bricking scaffold near the top of an air shaft, 62 feet deep. They were re-building a portion of the shaft lining. The ends of the frame of the scaffold were carried in recesses in the brickwork. An overload of building materials was placed on the scaffold, and one of the main timbers of its frame snapped. The scaffold canted, and two of the men were precipitated into the water at the bottom of the shaft. Deceased was drowned. The other men escaped without injury. Inspection and inquiry made.
150	8th July, 11 P.M.	Mosaboni mine, Bakha Mines P. O., Bihar and Orissa.	Cordoba Copper Co., Ltd.	Govinda, (m.), 33, Miner.	Copper ore	While deceased was ascending the topmost ladder in a prospecting shaft he lost his hold and fell to the bottom, a distance of 100 feet. He was killed instantly. Inspection and inquiry made.
151	1st—8th September.	Marine mine, Kusunda P. O., Bihar and Orissa.	Marine Coal Co., Ltd.	Lutam Kahar, (m.), 30, Labourer.	Coal	The body of deceased was found at the bottom of a winding shaft, 215 feet deep. The shaft was properly fenced both at the surface and at a mid-inset. Inspection and inquiry made.
<b>IN SHAFTS—THINGS FALLING FROM THE SURFACE—(1 death).</b>						
152	26th December, 7 P.M.	Barmonciba mine, Sitarampur P. O., Bengal.	New Beerbham Coal Co., Ltd.	Budhan Doshad, (m.), 35, Sinker.	Coal	Deceased and six other men were working at the bottom of a sinking shaft, 103 feet deep, when the banksman, fell from the top of the shaft on to deceased, killing him instantly. The banksman was not seriously injured. Inspection and inquiry made.

IN SHAFTS—THINGS FALLING FROM PART OF  
THE WAY DOWN—(2 deaths).

153	8th October, 11 P.M.	Kargali mine, Bokaro P. O., Bihar and Orissa.	Great Indian Peninsula Railway Co.	Sahadeo Dosal, (m.), 20, <i>Pump attendant.</i>	Coal	Deceased was on a pump scaffold suspended at a point 15 feet above the bottom of a sinking shaft, 337 feet deep. A piece of stone fell from the side of the shaft and struck him, causing deep wounds. He fell to the bottom of the shaft and sustained a fracture of the spine. A sinker in the shaft bottom was injured by the falling stone. Inspection and inquiry made.
154	17th November, 11-30 A.M.	Rakha Hills mine, Rakha Mines P. O., Bihar and Orissa.	Cape Copper Co., Ltd.	K. D. Ramaya, (m.), 55, <i>Timber Mistry.</i>	Copper ore	Whilst a loaded skip was being raised in a shaft derailment took place. The skip overturned and its contents fell down the shaft, killing deceased who was at work further down the shaft. Inspection and inquiry made.

IN SHAFTS—MISCELLANEOUS—(5 deaths).

155	12th August, 9 A.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	(1) Rata Kumar, (m.), 18; (2) Gurudayal Moodi, (m.), 21; (3) Nurah Khan, (m.), 34, <i>Sinkers.</i>	Coal	Five sinkers were standing on a scaffold suspended in a shaft from a winch at surface, and were engaged in dressing the sides of the shaft. Stone from the side of the shaft fell upon the scaffold, and its weight was sufficient to carry away the winch at surface, and to cause the scaffold to descend some 20 to 30 feet. The winch displaced some heavy fencing planks at the top of the pit, and these fell down the shaft, killing three of the men and injuring another. Inspection and inquiry made. (See Report, page 13.)
156	19th August, 7 A.M.	Jibutil mine, Morrison P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ltd.	Jimmie, (m.), 30, <i>Pumpman.</i>	Gold	Deceased whilst on duty at a steam pump fixed in a shaft lost consciousness owing to the high temperature in the shaft. He fell into water in the shaft and was drowned. Inspection and inquiry made.
157	27th October, 8-30 A.M.	Kujama mine, Jharua P. O., Bihar and Orissa.	K. & S. Nanjee	Goolu Mabata, (m.), 35, <i>Coal-cutter.</i>	Coal	Deceased, instead of using the pass-by, and un-noticed by the onsetter, crossed the bottom of a shaft. He was caught by the descending cage, and received injuries from which he died two hours later. Inspection and inquiry made.

BY EXPLOSIVES—(20 deaths).

158	9th February, 2-30 P.M.	Jharua Khas mine, Jharua P. O., Bihar and Orissa.	Standard Coal Co., Ltd.	(1) Joypal Chamar, (m.), 12; (2) Bhagwan Chamar, (m.), 16, <i>Coal-cutters.</i>	Coal	The deceased and another coal-cutter, were burned by the ignition of gunpowder in a miners' hut. The deceased died some hours later. Inspection and inquiry made.
159	20th February, 8 A.M.	Barkui mine, Pench P. O., Central Provinces.	Pench Valley Coal Co., Ltd.	(1) Pardesi Kole, (m.), 18; (2) Dharua Kole, (m.), 14; (3) Bansa Gond, (m.), 15, <i>Banksmen</i> ; (4) Daari Gondni, (f.), 18, <i>Coal-filler.</i>	Coal	A shot-firer placed 22 lbs. of gunpowder in a wooden tool chest underground. By some means unknown the powder became ignited and exploded. Five persons in the vicinity were severely burnt and four of them died subsequently. The shot-firer was prosecuted, convicted and sentenced to two years' imprisonment.



APPENDIX II—contd.

Fatal Accidents, 1921—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>BY EXPLOSIVES—concl'd.</b>						
160	8th March, 12 A.M.	Kowabar mine, Jhumri-Tilaiya P. O., Bihar and Orissa.	A. C. Bose & Sons	Mongar Singh, (m.), 28, <i>Driller.</i>	Mica	Deceased was drilling a shot hole near another hole in which a shot had missed fire. The mis-fired charge exploded, causing injuries to which he succumbed the next day. Inspection and inquiry made.
161	1st April, 10 P.M.	Patrahi mine, Tisri P. O., Bihar and Orissa.	Joharmull Sandermull & Co.	Sohan Turi, (m.), 18, <i>Driller.</i>	Mica	A mis-fire had occurred in the previous shift. Whilst deceased was engaged in drilling a hole for a relieving charge the mis-fired charge exploded. He sustained injuries which caused his death a few hours afterwards.
162	24th April, 8-30 P.M.	Methani mine, Sitarampur P. O., Bengal.	Alcib Coal Co., Ltd.	Chutu Singh, (m.), 22, <i>Sinker.</i>	Coal	During sinking operations, a round of nine shots was fired in the sump. One shot mis-fired, and the explosives became mixed with the debris. Ten hours later, deceased with eighteen others was removing the debris, when the shot went off. Deceased, sustained injuries from which he died within an hour. Eight of the other men sustained slight superficial injuries. Inspection and inquiry made.
163	13th May, 6 A.M.	Nursamuda mine, Asansol P. O., Bengal.	Sitarampur Coal Co.	Behari Kurmi, (m.), 30, <i>Sinker.</i>	Coal	Two shots had been fired to relieve two mis-shots in a sinking shaft. An hour and a half later when deceased and other persons were cleaning up debris an explosion took place. Deceased was fatally injured and died 14 hours later. Another man was severely injured. Inspection and inquiry made.
164	29th June, 9 A.M.	Bhulanbararee mine, Jharia P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ltd.	Bhairab Roy, (m.), 48, <i>Miners' Sirdar.</i>	Coal	Deceased was drying gunpowder in a pan over an open fire. He was in the act of stirring the powder when it caught fire and flamed up. He received burns from which he died six days later. Inspection and inquiry made.
165	19th June, 9 A.M.	Datla mine, Pench P. O., Central Provinces.	Pench Consolidated Coal Co., Ltd.	Udhukiza Mehra, (m.), 30, <i>Coal-cutter.</i>	Coal	Deceased with another man had removed some gunpowder from a canister. One of the two men had been smoking, and presumably the gunpowder was accidentally ignited by means of a match or a cigarette end. Both men were slightly burnt. Deceased ran away from the hospital and stripped off his bandages. He died eleven days later. Inspection and inquiry made.
166	17th August, 6 A.M.	Alkusa North mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Asso- ciation, Ltd.	Mahadeo Turi, (m.), 40, <i>Sirdar and shot-firer.</i>	Coal	Deceased was drying gunpowder in a basin in front of a fire, when a spark from the fire ignited the powder. He was severely burnt, and died five days later. Inspection and inquiry made.
167	17th August, 11-30 A.M.	Nandi mine, Nandi P. O., Bengal.	Adjai Coal Co., Ltd.	Mangee Chamar, (m.), 40, <i>Coal-cutter.</i>	Coal	Deceased after having 3 lbs. of gunpowder issued to him, went to his quarters to cook food instead of going into the mine at once. His clothing became accidentally ignited, and in divesting himself of it he threw a piece of the burning cloth on to a tin canister containing the powder. The powder exploded and burnt deceased severely all over the body. He died on the following morning. Inspection and inquiry made.

168	1st September, 9-30 A.M.	Katras mine, Katraszarb P. O., Bihar and Orissa.	Barrakur Coal Co., Ltd.	Gali Singh, (m.), 35, <i>Machineman.</i>	Coal	Deceased was trimming an open lamp when a piece of smouldering wick fell into some gunpowder which was close at hand. The powder was ignited, and deceased was severely burnt about the body. He died 12 days later. Inspection and inquiry made.	
169	5th October, 8-30 P.M.	Craddock mine, Pench P. O., Central Provinces.	Central Pench Coal Co.	Rasun Parlihan, (m.), 15, <i>Labourer.</i>	Coal	Deceased had been assisting a shot-firer in making up gunpowder cartridges. There was a fire burning some 8 feet away. Whilst sweeping up loose powder which had fallen on the ground, the powder caught fire. Deceased sustained fatal injuries and another man was severely burnt. Inspection and inquiry made.	
170	19th November, 1 P.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Company, Ltd.	(1) Benwari Singh, (m.), 24 ; (2) Jobraj Singh, (m.), 16 ; (3) Bikhari Singh, (m.), 30, <i>Coal-cutters.</i>	Coal	The deceased, one of whom was a shot-firer, were charging a shothole in roof coal. While pushing in the second cartridge of gunpowder it burst, and the gunpowder fell out and on to a lamp which was directly below the hole. This in turn ignited the powder in an open box which was standing close by. The deceased was severely burnt all over the body, and succumbed to their injuries a few hours later. Inspection and inquiry made.	
171	9th December, 12 noon.	Jattachappa mine, Parasia P. O., Central Provinces.	Upper Pench Coal Co., Ltd.	Kapusingh Thakur, (m.), 45, <i>Shot-firer.</i>	Coal	Deceased sustained fatal burns through an explosion of gunpowder. His deposition was that he had opened his powder tin, and his assistant threw a cigarette end into it. The assistant was slightly burnt.	
<b>HAULAGE—(32 deaths).</b>							
172	10th January, 7-30 P.M.	Kargali mine, Bokharo P. O., Bihar and Orissa.	Great Indian Peninsula Railway Co.	Ram Bux, (m.), 26, <i>Coal-cutter.</i>	Coal	Deceased was run over by a set of five tubs which was being lowered by hand down a slight incline in a quarry. He received injuries from which he died some hours later. Inspection and inquiry made.	
173	24th January, 9-15 A.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Rai Bahadur Bissesardas Daga and Sir M. B. Dadabhoy.	Pital Papi Lachmaru (f.), 40, <i>Trammer.</i>	Coal	Owing to the slipping of a clip on an endless haulage road a loaded tub ran wild killing deceased and injuring another man. Inspection and inquiry made.	
174	9th February, 4 P.M.	Singrah mine, Mohuda P. O., Bihar and Orissa.	Singrah Coal Co., Ltd.	Bidhua Dhobi, (f.), 18, <i>Labourer.</i>	Coal	The first tubs of a set of ten loaded tubs which was gravitating from the workings to a haulage incline derailed near the junction. Deceased, who was returning to work, was crushed between the side of the road and one of the tubs. She was killed instantly. Inspection and inquiry made.	
175	13th February, 11 A.M.	South East Baraboni mine, Charanpur P. O., Bengal.	Maharaja of Cassimbazar	Manu Roy, (m.), 39, <i>Coal-cutter.</i>	Coal	Deceased had lowered a loaded coal tub down an inclined haulage road on to a level stretch. He had failed to secure a second tub which ran away, crashed into the first one and turned over. Deceased sustained serious injuries to the left leg and died two days later. Inspection and inquiry made.	
176	3rd March, 7 P.M.	Ena mine, Jharia P. O., Bihar and Orissa.	North-West Coal Co., Ltd.	Sona Mahato, (m.), 30, <i>Coal-cutter.</i>	Coal	Whilst a train of 10 empty tubs was being lowered on a haulage slope the three leading tubs became detached and ran wild for a distance of about 400 feet. Deceased, who was walking out of the mine at the time, was run over and killed. Inspection and inquiry made.	

APPENDIX II—contd.

Fatal Accidents, 1921—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.
HAULAGE—contd.						
177	5th March, 2-30 P.M.	Pandaveswar mine, Pandaveswar P. O., Bengal.	Pandaveswar Colliery, Ltd.	Niroo Bauri, (f.), 13, Labourer.	Coal	A tub, which was being loaded with coal, was standing on a road having a gradient of 1 in 40. The 'locker' or 'sprag' in the wheel of the tub slipped out and the tub ran forward on to deceased who was sitting on the line in front of it. She sustained serious injuries and died 2 days later. Inspection and inquiry made. (See Report, page 13.)
178	7th March, 1 A.M.	Khost mine, Khost P. O., Baluchistan.	North-Western Railway	Snif, (m.), 20, Labourer.	Coal	Whilst deceased was being raised in a tram in an inclined shaft the tram derailed. He attempted to get out of the tram, and was crushed between the tram and the shaft timbers, sustaining injuries which caused death within a few days.
179	16th March, 9-45 A.M.	Phularitand mine, Katrasgarh P. O., Bihar and Orissa.	Phularitand Coal Co., Ltd.	Shibu Kahar, (m.), 27, Surveyor's chainman.	Coal	Whilst a train of six loaded tubs was being hauled up an incline a coupling gave way. Four of the tubs ran wild and collided with an empty tub. The latter fell on the deceased, killing him instantly. Inspection and inquiry made.
180	25th March, 1-30 P.M.	Joyramdanga mine, Asansul P. O., Bengal.	New Beerbhum Coal Co., Ltd.	Ram Lal Mahato, (m.), 30, Labourer.	Coal	Whilst a set of seven loaded tubs was being hauled up an incline, five of the tubs became uncoupled and ran back down the incline. Deceased, who was walking up the incline at the time, failed to get out of the way and was killed. Inspection and inquiry made.
181	4th April, 5-30 P.M.	Samla Chatrisgonda mine, Pandaveswar P. O., Bengal.	Samla and Kendra Col- lieries, Ltd.	Body Bauri, (m.), 24, Pumpman.	Coal	A train of three tubs had been hauled to the top of a haulage slope. A Sirdar took off the drag and uncoupled the rear tub, but omitted to turn over the points for the siding. The upper stop block had been left open, and the tub ran back down the incline, demolished a second stop block, and struck deceased, causing fatal injuries. Inspection and inquiry made. (See Report, page 14.)
182	10th April, 7-15 A.M.	Bhulanbararee mine, Jharis P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ltd.	Majoo Gowala, (m.), 22, Hookman.	Coal	Deceased was riding on the front tub of a train of loaded tubs which was being hauled out of an incline. At the entrance to the mine he jumped off, fell and was run over. He received injuries which necessitated the amputation of his leg. He died two days later. Inspection and inquiry made.
183	25th April, 5 P.M.	Chittidand mine, Golpur P. O., Panjab.	Panjab Coal Co., Ltd.	Nathoo, (m.), 22, Labourer.	Coal	Deceased was working underground at the bottom of a self-acting incline when the rope broke and the tubs ran wild. He was crushed between the tubs and the side of the road, receiving injuries from which he died 1½ hours later. Inspection and inquiry made.
184	19th May, 11 A.M.	Sripore mine, Kalipahari P. O., Bengal.	Lodna Colliery Co., Ltd.	Khiri Korah, (f.), 15, Coal-carrier.	Coal	The deceased was walking along a haulage road when, hearing the approach of a loaded tub, she apparently lost her head and stepped in front of the tub. The tub ran over her, causing injuries to which she succumbed in hospital a month later. Inspection and inquiry made.

185	14th May, 12-14 P.M.	Rajhara mine, Rajhara P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Matukihari Ram, (m.), 14, <i>Door-keeper.</i>	Coal	Deceased was employed in opening and closing a door on an underground haulage slope. The door was operated by a wire from a manhole. Hearing a runaway tub coming the deceased ran to the door and shouted a warning, but failed to get clear himself, and received injuries from which he died next day. Inspection and inquiry made.
186	21st May, 12-30 P.M.	Bansjora mine, Bansjora P. O., Bihar and Orissa.	Bansjora Coal Co., Ltd.	Rupea Bhuiya, (f.), 25, <i>Coal-carrier.</i>	Coal	Whilst a set of seven tubs was being hauled up an incline of 1 in 3 the coupling of the first tub gave way causing six of the tubs to run wild to the bottom, where they smashed the buffer. Deceased who was standing below the buffer, was killed instantly. Inspection and inquiry made.
187	28th May, 8-10 A.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Rai Bahadur Biswasdas Daga and Sir M. B. Dadabhoj.	Uttumpat Singh, (m.), 25 years, <i>Haulage attendant.</i>	Coal	Owing to the failure of another haulage attendant to release an unusually stiff clip on an endless haulage road a loaded tub was drawn against two other tubs which were being coupled by deceased. Deceased was crushed between the tubs and sustained injuries to the head which caused his death seventeen days later. Inspection and inquiry made.
188	9th June, 12 noon.	Chatraigonda mine Pandaveswar P. O., Bengal.	Sarla-Kendra Collieries, Ltd.	Rakha Hari Dutta (m.), 40, <i>Hookman.</i>	Coal	Deceased was waiting for a set of empty tubs at the bottom of a haulage incline. Five empty tubs became uncoupled, ran down the incline, broke through stop block, and killed deceased. Inspection and inquiry made. (See Report, page 14.)
189	10th June, 10 A.M.	Jainty Central mine, Karmatar P. O., Bihar and Orissa.	Jainty Central Collieries, Ltd.	Maku Mejhian, (f.), 14, <i>Labourer.</i>	Coal	Deceased and ten other persons were asleep in a manhole at the side of an underground haulage slope. Five empty tubs ran away from the bank head. Being awakened by the noise of the tubs coming down the incline, they ran out of the manhole and were struck by the tubs. Deceased was killed and three of the other persons were injured. Inspection and inquiry made. (See Report, page 14.)
190	26th June, 5 A.M.	Bhulanbararee mine, Jharua P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ltd.	Muki Mejhian, (f.), 20, <i>Coal-carrier.</i>	Coal	A set of four loaded tubs was lowered too quickly on a dip haulage slope and it collided with another set of five loaded and four empty tubs which was resting against a buffer stop. The buffer stop was broken, and deceased was run over by the tubs and killed. Inspection and inquiry made.
191	30th June, 4-30 P.M.	Ledo Valley mine, Marghoritta P. O., Assam.	Assam Railways and Trading Co., Ltd.	Bhobey Jogi, (m.), 40, <i>Pony driver.</i>	Coal	Deceased was in charge of a pony which was hauling a train of tubs on an underground road. He was walking behind the train when the pony stopped, and he attempted to reach its head. The pony, however, started again, and deceased was crushed between the tubs and the side of the road, sustaining injuries which resulted fatally, three days later. There was ample room to pass on the other side of the train. Inspection and inquiry made.
192	14th July, 3-45 A.M.	Chowrasia mine, Dishergarh P. O., Bihar and Orissa.	Equitable Coal Co., Ltd.	Kristo Bauri, (m.), 36, <i>Hookman.</i>	Coal	As a set of full tubs was being drawn up an incline, one of the links in a shackle broke, causing six full tubs to run back. These tubs became derailed and crushed deceased against the side of the incline causing injuries from which he died three hours later. Inspection and inquiry made.
193	15th July, 7-30 P.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Dwarbar Meah, (m.), 20, <i>Main gallery driver.</i>	Coal	Deceased was returning from work and was walking up a haulage incline, when he was struck by a derailed runaway tub. He received injuries from which he died shortly after. A separate travelling road was provided. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1921—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>HAULAGE—concl'd.</b>						
194	16th July, 8 A.M.	Khost mine, Khost P. O., Baluchistan.	North-Western Railway	Wali Hussain, (m.), 30, <i>Bankman.</i>	Coal	Deceased was on duty as shaft attendant at an intermediate landing in a highly inclined shaft. A derailment occurred in the shaft, and, in attempting to climb up the shaft to assist in re-railing the train, he slipped and fell down the shaft, being killed instantly.
195	4th August, 11 A.M.	Huntodih mine, Jharia P. O., Bihar and Orissa.	Huntodih Coal Co., Ltd.	Sibaroth Kurmi, (m.), 50, <i>Screen attendant.</i>	Coal	While a set of ten empty tubs was being lowered over the top of an incline the coupling hook next to the rope broke, and the tubs ran wild. Deceased was employed as a door attendant at the second level where a refuge place was provided. He lost his head and ran out in front of the tubs. He was run over and killed instantly. Inspection and inquiry made.
196	17th August, 9-30 A.M.	Kustore South mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ltd.	Subhotin Dhamorah, (f.), 35, <i>Coal-carrier.</i>	Coal	Deceased was walking along a main shaft level underground. Whilst she was crossing the foot of a haulage slope she was run over by runaway tubs, and sustained fatal injuries. Inspection and inquiry made.
197	24th August, 6 P.M.	Bhagaband mine, Jharia P. O., Bihar and Orissa.	Borrea Coal Co., Ltd.	(1) Abdul Meah, (m.), 45, <i>Line Mistri;</i>  (2) Monga Hazam, (m.), 25; (3) Chalkar Goals, (m.), 25, <i>Labourers.</i>	Coal	While a set of seven loaded tubs was being hauled up an incline the front coupling chain broke and the tubs ran wild. The three deceased, who were working at the entrance to a new cross-cut below the landing in use, were run over and killed. Inspection and inquiry made.
198	26th September, 5 P.M.	Bhalgora mine, Jharia P. O., Bihar and Orissa.	Bhalgora Coal Co., Ltd.	Gobind Sha, (m.), 25, <i>Labourer.</i>	Coal	Whilst a loaded tipping tub was being tried over a newly laid line it derailed and fell on deceased. He died ten hours later. Inspection and inquiry made.
199	1st October, 3-20 P.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Rai Bahadur Bisesardass Daga and Sir M. B. Dadabhoy.	Yado Vidur, (m.), 32, <i>Tranmer.</i>	Coal	At a junction on an endless haulage road there was room for three tubs to stand on an automatic stop-check. The pin of the check was removed, and ten tubs were placed there on sprags. The tubs ran wild and broke another check further down the line. Deceased was run over and killed. Inspection and inquiry made.
200	3rd October, 8-30 P.M.	South East Baraboni mine, Charanpur P. O., Bengal.	Maharaja of Cassimbazar	Aghore Mitter, (m.), 24, <i>Sircar.</i>	Coal	Deceased attempted to jump on to a train of tubs proceeding up an incline. He fell, and was carried along for a distance of 60 feet. He sustained serious injuries to which he succumbed three days later. Inspection and inquiry made.

201	15th October, 10-30 A.M.	Ledo Valley New West mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Gurul Chamar, (m.), 27, <i>Hookman.</i>	Coal	Deceased was standing at the bottom of an underground self-acting incline when a full tub overran the stop block at the top of the incline, ran down the incline, and crushed deceased against the side of the road, killing him instantly. Inspection and inquiry made.
<b>SUNDRIES UNDERGROUND—(12 deaths).</b>						
202	22nd January, 9-30 P.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ltd.	Jabsingh, (m.), 34, <i>Labourer.</i>	Lead ore	While deceased was shovelling ore into a shoot through an opening, 18" x 3' wide, he took fright at a small fall of ground above him. He stumbled and fell down the shoot, a distance of 80 feet. Death was instantaneous. Inspection and inquiry made.
203	20th January, 5 A.M.	Lakurka mine, Katsyarah P. O., Bihar and Orissa.	Lakurka Coal Co., Ltd.	Noonia Mejhian, (f.), 35, <i>Coal-carrier.</i>	Coal	Deceased was emptying a basket of coal into a tub in a gallery underground when the basket overbalanced. In stepping back to avoid it she fell against the side of the gallery and injured her back. She died from her injuries two months later. Inspection and inquiry made.
204	6th April, 1-30 A.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Churo Chamar, (m.), 35, <i>Coal-cutter.</i>	Coal	Deceased whilst at work in a gallery 16 feet in height fell from a ladder and falling a distance of 9 feet sustained injuries to the head which resulted fatally shortly after. Inspection and inquiry made.
205	11th April, 8 P.M.	Seebpur mine, Charanpur P. O., Bengal.	Katras Jharia Coal Co., Ltd.	Kusmi Baurin, (f.), 20, <i>Labourer.</i>	Coal	An empty tub fell from the cage into the sump at the bottom of a shaft, 600 feet deep. Deceased, who was employed at the pit bottom, was subsequently found drowned in the sump. Inspection and inquiry made.
206	7th July, 2 A.M.	Kantapahari mine, Asansol P. O., Bengal.	Burrakur Coal Co., Ltd.	Pag Sing, (m.), 45, <i>Labourer.</i>	Coal	Deceased and ten other persons were ordered to hoist a motor by means of a winch and snatch block from a pump house situated in a roadway, dipping 1 in 3.5. Having hauled up the motor 75 feet, instructions were given to scotch it up to allow of the anchor for the snatch block being advanced. When slack rope was being given out from the winch in order to release the snatch block, the motor slipped back about 8 feet, and struck deceased on the thigh. He died from his injuries ten days later. Inspection and inquiry made.
207	14th August, 1 A.M.	Guzh mine, Khost P. O., Baluchistan.	North-Western Railway.	Gulam Mohammad, (m.), 17; <i>Labourer.</i>	Coal	Whilst deceased was laying rails on a level in a highly inclined coal seam, a coal shoot broke away from its fastening and slipped down into the level. The end of the shoot struck deceased on the head, killing him instantly.
208	8th September, 2-30 P.M.	Tikak Lower mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Leopok, (m.), 27, <i>Pony Driver.</i>	Coal	Deceased was driving a pony in an underground gallery when he was knocked down by the pony, sustaining injuries from which he died shortly after. Inspection and inquiry made.
200	15th October, 9-30 A.M.	Bawdwin mine, Namtu P. O., Burma.	Burma Corporation, Ltd.	Fro Soy, (m.), 38, <i>Miner.</i>	Lead ore	Whilst at work underground deceased was struck by a piece of ore which fell from an upper level. He received fatal injuries.
210	25th October, 5-0 A.M.	Seebpore mine, Charanpur P. O., Bengal.	Katras Jhuria Coal Co., Ltd.	(1) Matroo Khan, (m.), 35, <i>Coalcutting Machine Mistry;</i> (2) Taroo But, (m.), 30, <i>Labourer.</i>	Coal	The deceased had been operating an electric coalcutting machine. They were found dead, presumably by electrocution. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1921—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—concl'd.</b>						
211	7th November, 1 P.M.	Kajora mine, Ondal P. O., Bengal.	H. N. Pal Choudhury	Badi Pauri, (m.), 36, <i>Pump-khalasis.</i>	Coal	Deceased after signalling for steam from the surface to be admitted to an underground pump, failed to open the steam and water valves fitted on the steam range. A joint, 3'—6" distant from the pump, blew out, and deceased was severely scalded. He died eleven hours later. Inspection and inquiry made.
212	30th November, 4 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Kabilash Routh, (m.), 45, <i>Coal-puller.</i>	Coal	Whilst coal was being shovelled down a steep slope deceased failed to stand clear. He was struck by a lump of coal and sustained fatal injuries.
<b>SURFACE MACHINERY—(3 deaths).</b>						
213	7th July, 10-45 P.M.	Dongar Chickli mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ltd.	Nonkhey Teli, (m.), 20, <i>Surface Trammer.</i>	Coal	Deceased and another tramping coolie pushed a tub of coal so forcibly on to a tippler that the tippler overturned backwards, carrying deceased over with it. He was precipitated into the wagon below, and killed instantly. Inspection and inquiry made.
214	20th July, 5-30 A.M.	Bejdih mine, Sitarampur P. O., Bengal.	The Equitable Coal Co., Ltd.	Budhan Dasad, (m.), 25, <i>Labourer.</i>	Coal	Deceased and another coolie were turning the flywheel of a compressor by means of a lever when the lever being pushed only partially down the safety catch did not engage and the flywheel ran back about 2 inches. The end of the lever struck deceased on the jaw. He died some nineteen hours later. Inspection and inquiry made.
215	29th August, 12-10 P.M.	Kankani mine, Bansjora P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Khera Gowala, (m.), 25, <i>Labourer.</i>	Coal	Whilst the drum of a winding engine was being dismantled two round timbers 3 inches in diameter, were inserted through the spokes to prevent it from turning. When the bottom plate of the drum was dropped one of the timbers broke and the drum began to revolve. The other timber was carried round and struck deceased. He was crushed between the side of the drum and the foundation, and sustained injuries from which he died an hour later. Inspection and inquiry made.
<b>SURFACE BOILERS OR PIPES BURSTING— (1 death).</b>						
216	21st August, 5 P.M.	Benahir mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ltd.	Isharil Meah, (m.), 24, <i>Fireman.</i>	Coal	While the blow off cock of a boiler was being opened the joint between the cock and the pipe which leads the steam clear of the boiler house burst. Deceased who was standing near was scalded all over the body, and succumbed to his injuries on the following day.

**ON SURFACE, RAILWAYS AND TRAMWAYS  
BELONGING TO THE MINE—(4 deaths).**

217	1st January, 11-30 P.M.	Bawdwin mine, Namtu P. O., Northern Shan States, Burma.	Burma Corporation, Ltd.	Gokulchand, (m.), 32, <i>Brakesman.</i>	Lead ore	A collision took place between stationary and moving trains on an electric railway passing through an adit level. Deceased who was driving the moving train was killed.
218	7th January, 4-30 P.M.	Albion mine, Nowgarh P. O., Bihar and Orissa.	Albion Coal Co., Ltd.	Surja Narayan Roy, (m.), 21, <i>Tubechecker.</i>	Coal	Deceased attempted to jump on to a train of tubs which was in motion. He slipped and a tub ran over his leg, which had to be amputated. He died from tetanus 12 days later. Inspection and inquiry made.
219	9th October, 10-30 A.M.	Tirody mine, Tirody P. O., Central Provinces.	D. Laxminarayan	Dukala, (f.), 45, <i>Labourer.</i>	Manganese ore.	Deceased whilst attempting to cross a tram line, slipped and fell, and was run over by a loaded tub. She sustained injuries to which she succumbed 12 days later.
220	31st December, 8-35 P.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Kasturchand Daga and M. B. Dadabhoy.	Gaji, (m.), 30, <i>Labourer.</i>	Coal	Deceased was unloading a sand tub on a surface endless haulage road, owing to the failure of a haulage attendant to take off a haulage clip, a moving tub collided with a stationary tub. Deceased was thrown off and sustained fatal injuries.

**MISCELLANEOUS ON SURFACE—(12 deaths).**

221	3rd June, 9-30 P.M.	Mosabani mine, Rakha Mines P. O., Bihar and Orissa.	Cordoba Copper Co., Ltd.	Nangi Nagi, (f.), 17, <i>Labourer.</i>	Copper ore	Whilst a bucket of water was being wound up a prospecting shaft some timber broke away from the side and struck the bucket. The women who were working the hoisting whim let go, and deceased who was squatting below was struck by one of the rapidly revolving arms of the whim and killed. Inspection and inquiry made.
222	7th July, 12-30 P.M.	Kujama mine, Jharia P. O., Bihar and Orissa.	K. & S. Nanji	Akhali Mallain, (f.), 15, <i>Coal-carrier.</i>	Coal	Deceased was loading coal in a quarry, 80 feet deep, when a wall on the edge of the quarry collapsed. The debris fell into the quarry, some of it striking deceased. She was killed instantly. Inspection and inquiry made.
223	7th July, 2-P.M.	Selwa mine, Kamptee P. O., Central Provinces.	Central Indian Mining Co. Ltd.	Sumi, (f.), 16, <i>Labourer.</i>	Manganese.	Deceased whilst washing on the edge of a water-logged quarry slipped in and was drowned. Inspection and inquiry made.
224	20th July, 8 A.M.	Purushotampur mine, Pandaveswar P. O., Bengal.	Tata Iron & Steel Co., Ltd.	Radhu Baurin, (f.), 20, <i>Labourer.</i>	Coal	Deceased was carrying on her head a boulder, weighing 118 lbs. She over-balanced and fell backwards. The boulder struck her on the forehead, killing her instantly. Inspection and inquiry made.
225	8th August, 4 P.M.	Kendwadih mine, Katragarh P. O., Bihar and Orissa.	Chamanlal Mangallal & Co.	Ali Mohammad, (m.), 36, <i>Labourer.</i>	Coal	Deceased and six companions were lifting a vertical boiler into place with the aid of a small crab winch. One of the handles broke and as there was neither brake nor pawl the other handle was forced backwards and struck deceased on the head. He died four hours later. Inspection and inquiry made. ( <i>See Report, page 16.</i> )
226	22nd August, 2-30 P.M.	Teetilmuri mine, Sijua P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	Samia Murani, (f.), 13, <i>Labourer.</i>	Coal	Deceased left her work and went to get a bird's nest built on the top of a standard which supports a three phase transmission line carrying electricity at a pressure of 6000 volts. She climbed up the standard and stood on the return wire, and made contact with one of the live wires above. She was very badly burnt, and died shortly after. Inspection and inquiry made.



APPENDIX II—contd.

Fatal Accidents, 1921—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>MISCELLANEOUS ON SURFACE—concl.</b>						
	2nd September, 4-30 P.M.	Isabella mine, Nudkhurki P. O., Bihar and Orissa.	Isabella Coal Co.	Durgi Kamin, (f.), 25, Labourer.	Coal	Deceased was found drowned in a masonry tank containing water, 7 feet deep. She had been employed in carrying water from the tank. Inspection and inquiry made.
228	27th September, 12 noon.	Lohdongri mine, Ramtek P. O., Central Provinces.	Central Provinces Pros- pecting Syndicate, Ltd.	Bubin Perdhan, (m.), 27, Labourer.	Manganese	Deceased whilst bathing in an accumulation of water in a quarry was drowned. Inspection and inquiry made.
229	24th October, 7-30 P.M.	Sudamdih mine, Jharin P. O., Bihar and Orissa.	Sudamdih Coal Co., Ltd.	Ramdhan Singh, (m.), 55, Chowkidar.	Coal	Deceased apparently missed his way in the dark and fell over the fence into an incline. His injuries were slight but he afterwards died in hospital from dysentery. Inspection and inquiry made.
230	28th October, 6 A.M.	Bhulanbararee mine, Jharin P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ltd.	Sadagar Singh, (m.), 37, Labourer.	Coal	Deceased for some reason unknown and against all orders, climbed a standard carrying an high tension electrical transmission line. He was electrocuted. Inspection and enquiry made.
231	5th December, 12 noon.	Loyatad mine, Bansjora P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	Fatma, (f.), 13, Labourer.	Coal	Whilst deceased was attempting to remove a scaffolding pole from the wall of a building under construction the wall collapsed, seriously injuring her. She succumbed to her injuries six hours later. Inspection and inquiry made.
232	31st December, 3 P.M.	Taroktan mine, Mogok P. O., Burma.	Burma Ruby Mines, Ltd.	Somaris, (m.), 20, Labourer.	Rubies	A gang of coolies after carrying an iron pipe let the pipe fall from their shoulders instead of lowering it down. Deceased, who was one of the gang, fell with the pipe and was fatally injured.

APPENDIX II—contd.

Fatal Accidents, 1921—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—(37 deaths).</b>							
1	10th January	Hingunia mine, (Square No. m-14), Kodarma P. O., Bihar and Orissa.	Messrs. Hoare Miller & Co., Ltd.	Balia Ghatwarin, (f.), 25.	Mica	Not employed	Deceased fell into a disused shaft, 50 feet deep, and was killed. It was presumed that she was at the time engaged in stealing the wooden fencing of the shaft. Inspection and inquiry made.
2	11th January	Salanpur mine, Salanpur P. O., Bengal.	Borrea Coal Company, Ltd.	Pano Noonis, (f.), 75.	Coal	Not employed	Deceased, whilst drawing water from a well, 125 feet deep, over-balanced and fell into the water. She was drowned. Inspection and inquiry made.
3	18th January, 12-30 P.M.	Mudidih mine, Sijua P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	Teju Mullick, (m.), 38, <i>Sirdar</i> .	Coal	Not a mining accident.	Deceased went over the walling of a disused incline entrance to bathe, and was drowned in a depth of 15 feet of water. Inspection and inquiry made.
4	24th January, 12 A.M.	South Kujama mine, Jharia P. O., Bihar and Orissa.	Bagdigi Kujama Collieries, Ltd.	Ramtahal, (m.), 1.	Coal	Not employed	Deceased had been placed near a surface tram line and had crawled up to the line unnoticed by any one. He was struck on the head by a passing tub and killed instantly. Inspection and inquiry made.
5	11th February, 11-30 A.M.	S-tikdih mine, Bhujudih P. O., Bihar and Orissa.	Sutikdih Coal Co., Ltd.	Sombari Monda, (f.), 14.	Coal	Not employed	Deceased wandered on to a surface tram line. She was run over and killed by a loaded tub which was being pushed by two men. Inspection and inquiry made.
6	20th February, 2 P.M.	Sendra mine, Bansjora P. O., Bihar and Orissa.	Sendra Coal Co., Ltd.	Badamia Chamarin, (f.), 24, <i>Labourer</i> .	Coal	Not a mining accident.	Deceased, whilst washing dishes in a masonry bathing tank, slipped in and was drowned. Inspection and inquiry made.
7	23rd February, 3-15 P.M.	Bokaro mine, Bokaro P. O., Bihar and Orissa.	East Indian Railway and Bengal Nagpur Railway.	Montora Dhoabin, (f.), 65.	Coal	Not employed	Deceased was an old woman and partially blind. While she was crossing a surface tram line she tripped over the haulage rope and fell. She was run over and received injuries from which she died 12 hours later. Inspection and inquiry made.
8	24th February, 5-30 P.M.	Kharkhari and Mohepur mine, Katrasgarh P. O., Bihar and Orissa.	Kharkhari Collieries, Ltd.	Bipni Beldarin, (f.), 6.	Coal	Not employed	Deceased, in attempting to cross a surface tram line, was knocked down by a loaded tub which was being pushed to the loading depot. She received injuries to the leg and died from blood poisoning eleven days later. Inspection and inquiry made.
9	7th March, 9 P.M.	Mudidih mine, Sijua P. O., Bihar and Orissa.	Burrakur Coal Co., Ltd.	Anich Goals, (m.), 32, <i>Brick maker</i> .	Coal	Not a mining accident.	Deceased went to sleep in a grass hut in which a fire was burning. The hut caught fire and he was burnt to death. Inspection and inquiry made.
10	Not known	Srikristopur mine, Kalipahari P. O., Bengal.	Messrs. Balliram & Co.	Ganga Majhee, (m.), 50.	Coal	Not employed	Deceased was found drowned in a sinking shaft, 42 feet deep. He was said to have been mentally defective. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1921—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—contd.</b>							
11	20th March, 9 A.M.	Saundi mine, Samdih P. O., Bengal.	B. Hazra & Co.	Dugai Manjhi, (m.), 45.	Coal	Not employed	Deceased went into an abandoned quarry and began to cut coal for his own use and for sale. A mass of earth, 4' 6" x 3' x 9" weighing about 18 cwt., fell upon him from the side. He sustained injuries from which he died almost immediately. Inspection and inquiry made.
12	21st March, 4 A.M.	New Kessurgarh mine, Nowagarh P. O., Bihar and Orissa.	New Kessurgarh Coal Co., Ltd.	Karmee Bhuiya, (f.), 45. <i>Labourer.</i>	Coal	Not a mining accident.	Deceased was found drowned in a well. The well was properly fenced. Inspection and inquiry made.
13	28th March, 5 A.M.	Isabella mine, Nudkhurkhi P. O., Bihar and Orissa.	Isabella Coal Co.	Sugea Kurmi, (f.), 25, <i>Coal-carrier.</i>	Coal	Not a mining accident.	While deceased was sleeping in a hut an oil lamp overturned and set fire to her clothes. She died from her injuries ten days' later. Inspection and inquiry made.
14	20th April, 4 P.M.	Ghngus (Nos. 2 and 3 Pits) mine, Chanda P. O., Central Provinces.	Rai Bahadur Bissesardas Daga and Sir M. B. Dadabhoy.	Ram Pochu, (f.), 12, <i>Labourer.</i>	Coal	Not a mining accident.	Whilst assisting in hand shunting a railway wagon deceased was run over and killed. Inspection and inquiry made.
15	25th April, 2 A.M.	Kondwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Gansha Kahar, (m.), 22, <i>Labourer.</i>	Coal	Not a mining accident.	Deceased attempted to sprag a railway wagon which was being hand-shunted. He was caught by the sprag and thrown down, being killed instantly. Inspection and inquiry made.
16	6th May, 4-30 P.M.	Pretoria mine, Charanpur P. O., Bengal.	Seebpore Coal Co., Ltd.	Chand Moni, (f.), 1½.	Coal	Not employed.	Deceased crawled on to a pit bank unobserved. She was struck by an empty tub, and fell on to her head, sustaining injuries from which she died shortly afterwards. Inspection and inquiry made.
17	13th May, 12-30 P.M.	Parbelia mine, Dishegarh P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Munger Roy, (m.), 23, <i>Sinker.</i>	Coal	Not a mining accident.	Deceased was found drowned in a boiler feed tank. The tank was properly fenced. Inspection and inquiry made.
18	18th May, 6-30 P.M.	Bahajipani mine, Pench P. O., Central Provinces.	Pench River Coal Co., Ltd.	Sukdass Punka, (m.), 11.	Coal	Not employed	Deceased accompanied his father who was employed in driving a gallery, 9 feet wide, in a coal seam 5' 6" thick. A fall of roof, 13' x 3' x 1' thick, occurred without warning. Deceased was struck by the fall and killed instantly. Inspection and inquiry made.
19	24th May, 3-30 P.M.	Phularitand mine, Katrasgarh P. O., Bihar and Orissa.	Phularitand Coal Co., Ltd.	Karu Rajwar, (m.), 40, <i>Labourer.</i>	Coal	Not a mining accident.	Deceased with other coolies was pushing an empty coal wagon into position for loading on a railway siding. Whilst so engaged he slipped and fell, striking his head violently on the ground and sustaining a fracture of the skull. He died two days later. Inspection and inquiry made.

20	14th June, between 11-30 P.M.	7 and	Samla mine, Pandaveswar P. O., Bengal.	Samla-Rendra Collieries, Ld.	Mowri Dasai, (f.), 13.	Coal	Not employed	Deceased was run over by a train of tubs drawn by a locomotive. She received injuries from which she died within a few hours. Inspection and inquiry made.
21	17th June, 11 A.M.		Bokaro mine, Bokaro P. O., Bihar and Orissa.	East Indian and Bengal-Nagpur Railway Company.	Jhori Beldaria, (f.), 5.	Coal	Not employed	Deceased was found drowned in a quarry in an accumulation of water, 3 feet deep. Inspection and inquiry made.
22	12th July, 12-30 P.M.		Lachipur mine, Sitarampur P. O., Bengal.	Jalota Lachipur Coal Co.	Unknown, (f.), 35.	Coal	Not employed	The body of an unknown woman was found floating in the water of a disused shaft. Inspection and inquiry made.
23	17th July, 9 A.M.		Managion mine, Ramtek P. O., Central Provinces.	Central India Mining Co., Ld.	Mani Kisan, (f.), 15, Labourer.	Manganese.	Not a mining accident.	Deceased whilst taking water from a water-logged quarry slipped in and was drowned.
24	24th July, 10 A.M.		Jharia Khas (Angarpathra) mine, Katraagarh P. O., Bihar and Orissa.	Trigunait Bros.	Makhawa Bhuiyan, (f.), 15, Coal-carrier.	Coal	Not a mining accident.	Deceased, whilst taking water from a well, overbalanced, fell into the water and was drowned. Inspection and inquiry made.
25	1st August, 2-30 P.M.		Barmondia mine, Sitarampur P. O., Bengal.	New Beerbhum Coal Co., Ld.	Charu Baurin, (f.), 9.	Coal	Not employed	Deceased was run over by a tub on a surface tram line. She was killed instantly. Inspection and inquiry made.
26	12th August, 10-30 A.M.		Chanda mine, Jharia P. O., Bihar and Orissa.	R. A. Mucadam & Sons	Pagla Gowalia, (f.), 10.	Coal	Not employed	Deceased while bathing had a fit and was drowned. Inspection and inquiry made.
27	18th August, 1-50 P.M.		Seranpur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Manku Dhobi, (m.), 35, Shunter.	Coal	Not a mining accident.	While stepping out from between two sets of railway wagons which he had failed to couple deceased was knocked down and run over. He was killed instantly. Inspection and inquiry made.
28	11th September, about mid-night.		Ramjibanpur mine, Sitarampur P. O., Bengal.	Ramjibanpur Coal Co.	Chandra Bauri, (m.), 40.	Coal	Not employed	The body of deceased was found at the bottom of a shaft, 52 feet deep. The shaft was fenced, and it was presumed that he had jumped into the shaft. Inspection and inquiry made.
29	16th September, 4-30 P.M.		Hteinthitthaung mine, Hteinthit P. O., Burma.	Burma Finance and Mining Co., Ltd.	Bonbadur, (m.), 27, Labourer.	Wolfram and Tin.	Not a mining accident.	Deceased sustained fatal injuries through the fall of a tree near an open excavation.
30	26th September,		Jinagora mine, Jharia P. O., Bihar and Orissa.	G. D. Trijumji.	Fanchin Mulla, (f.), 25, Coal carrier.	Coal	Not a mining accident.	Deceased was found drowned in a water-logged quarry, who was subject to hysterical fits. Inspection and inquiry made.
31	1st October, 7-30 P.M.		Central Konda mine, Topoi P. O., Bengal.	Baijnath Ram Kumar Marwari.	Sewnath Singh, (m.), 12.	Coal	Not employed	Deceased, whilst assisting two coal cutters to make gunpowder cartridges, brought a light near to the explosive and caused an explosion. He sustained serious burns to which he succumbed a few hours later. The two coal cutters were slightly burnt. Inspection and inquiry made.
32	6th October, 1 P.M.		Jogta mine, Sijua P. O., Bihar and Orissa.	Messrs. Agabeg Brothers	Budhin Chamarin, (f.), 12, Bailor.	Coal	Not a mining accident.	Deceased was found drowned in a shallow bathing tank. Inspection and inquiry made.

APPENDIX II—concl'd.

Fatal Accidents, 1921—concl'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—concl'd.</b>							
33	3rd October, 12 Noon.	Hermyingyi mine, Tavoy P. O., Burma.	Burma Finance and Mining Co., Ltd.	Law Yin, (m.), 28, Dump Picker.	Wolfram and Tin.	Not a mining accident.	Deceased was killed by a falling tree.
34	18th October, 12-30 P.M.	Devada mine, Chipurupalle P. O., Madras.	Vizianagram Mining Co., Ltd.	Karanam Bangary, (m.), 25, Labourer.	Manganese.	Not a mining accident.	Deceased was found drowned in a water-logged part of a quarry.
35	25th October, 2 A.M.	Sodepur (Outerop) mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ltd.	Badhy Barhi, (m.), 40, Carpenter.	Coal	Not a mining accident.	Deceased, against orders, lifted the brake in front of a wagon containing timber, which was being unloaded on a colliery siding. The wagon moved forward and one of the wheels passed over deceased's left leg. He died fifteen days later from shock. Inspection and inquiry made.
36	Not known	Jogta mine, Sijna P. O., Bihar and Orissa.	Messrs. Agabeg Bros.	Japlal Tali, (m.), 10.	Coal	Not employed	Deceased was found drowned in a shallow bathing tank. Inspection and inquiry made.
37	24th December, 2 P.M.	Bhowra mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Jamoni Mullick, (f.), 7.	Coal	Not employed	Deceased whilst playing in a shallow quarry, was killed instantly by a fall of stone from a height of 7 feet. Inspection and inquiry made.

## APPENDIX II.

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1921.

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>A.—COAL.</b>													
Assam	Lakhimpur . . . . .	2,848	14	15	...	15	76	71	7	78	7.77	...	8.27
	Naga Hills . . . . .	510	1	1	...	1	1	...	1	1	4.44	...	1.96
	<b>TOTAL</b>	<b>3,358</b>	<b>15</b>	<b>16</b>	<b>...</b>	<b>16</b>	<b>77</b>	<b>71</b>	<b>8</b>	<b>79</b>	<b>7.42</b>	<b>...</b>	<b>4.76</b>
Baluchistan	Sibi, Khost . . . . .	971	7	6	...	8	1	1	...	1	14.21	...	8.24
	Quetta-Pishin . . . . .	168	1	1	...	1	...	...	...	...	8.47	...	5.95
	<b>TOTAL</b>	<b>1,139</b>	<b>8</b>	<b>9</b>	<b>...</b>	<b>9</b>	<b>1</b>	<b>1</b>	<b>...</b>	<b>1</b>	<b>13.22</b>	<b>...</b>	<b>7.80</b>
Bengal	Bankura, Raniganj . . . . .	111	...	...	...	...	...	...	...	...	...	...	...
	Birbhum „ . . . . .	387	...	...	...	...	...	...	...	...	...	...	...
	Burdwan „ . . . . .	45,315	42	45	8	48	40	32	10	42	1.78	0.15	1.00
	<b>TOTAL</b>	<b>45,813</b>	<b>42</b>	<b>45</b>	<b>8</b>	<b>48</b>	<b>40</b>	<b>32</b>	<b>10</b>	<b>42</b>	<b>1.76</b>	<b>0.15</b>	<b>1.05</b>
Bihar and Orissa	Hazaribagh { Bokaro-Ramgarh Giridih . . . . .	11,937	2	2	...	2	3	...	3	3	0.27	...	0.18
		9,421	5	6	...	6	18	16	2	18	0.94	...	0.64
	Jharia . . . . .	1,844	3	2	1	3	2	1	1	2	2.22	1.06	1.63
	Maublum { Jharia . . . . .	89,188	90	123	11	134	70	55	20	75	2.49	0.28	1.50
		Raniganj . . . . .	11,201	10	14	...	14	7	6	1	7	2.36	...
	Palamau, Daltonganj . . . . .	288	2	2	...	2	...	...	...	...	11.98	...	6.94
	Sambalpur, Hingir-Rampur	675	...	...	...	...	1	...	1	1	...	...	...
	Sonthal Parganas { Jainty . . . . .	1,248	1	1	...	1	...	...	...	...	1.56	...	0.60
		Raniganj . . . . .	815	1	1	...	1	...	...	...	4.69	...	1.23
<b>TOTAL</b>	<b>126,017</b>	<b>114</b>	<b>151</b>	<b>12</b>	<b>163</b>	<b>101</b>	<b>78</b>	<b>28</b>	<b>106</b>	<b>2.12</b>	<b>0.22</b>	<b>1.21</b>	
Orissa	Southern Shan States . . . . .	270	1	1	...	1	...	...	...	15.87	...	3.70	
Central Provinces	Betul . . . . .	81	...	...	...	...	...	...	...	...	...	...	...
	Chanda, Ballarpur . . . . .	2,182	6	5	1	6	10	8	3	11	3.39	1.41	2.75
	Cbhindwara, Pech Valley . . . . .	7,801	8	7	4	11	14	12	2	14	1.34	1.55	1.41
	Narsinghpur, Mohpani . . . . .	2,006	1	1	...	1	16	12	4	16	0.79	...	0.50
	Yeotmal . . . . .	82	...	...	...	...	...	...	...	...	...	...	...
<b>TOTAL</b>	<b>12,152</b>	<b>15</b>	<b>13</b>	<b>5</b>	<b>18</b>	<b>40</b>	<b>32</b>	<b>9</b>	<b>41</b>	<b>1.62</b>	<b>1.21</b>	<b>1.43</b>	
Punjab	Jhelum . . . . .	1,613	1	1	...	1	7	5	2	7	0.98	...	0.62
	Mianwali . . . . .	167	...	...	...	...	2	...	2	2	...	...	...
	Shahpur . . . . .	118	1	1	...	1	...	...	...	...	16.87	...	8.47
<b>TOTAL</b>	<b>1,898</b>	<b>2</b>	<b>2</b>	<b>...</b>	<b>2</b>	<b>9</b>	<b>5</b>	<b>4</b>	<b>9</b>	<b>1.72</b>	<b>...</b>	<b>1.05</b>	
<b>GRAND TOTAL (COAL)</b>		<b>190,647</b>	<b>197</b>	<b>237</b>	<b>20</b>	<b>257</b>	<b>268</b>	<b>219</b>	<b>59</b>	<b>278</b>	<b>2.18</b>	<b>0.24</b>	<b>1.35</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 1921—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>B.—MICA.</b>													
Bihar and Orissa . . . . .	Gnya . . . . .	1,659	...	...	...	...	1	1	...	1	...	...	...
	Hazariabagh . . . . .	10,691	4	5	...	5	5	14	...	14	0.77	...	0.47
	Manbhum . . . . .	8	...	...	...	...	...	...	...	...	...	...	...
	Monghyr . . . . .	282	...	...	...	...	...	...	...	...	...	...	...
	Sambalpur . . . . .	90	...	...	...	...	...	...	...	...	...	...	...
	<b>TOTAL</b>	<b>12,730</b>	<b>4</b>	<b>5</b>	...	<b>5</b>	<b>6</b>	<b>15</b>	...	<b>15</b>	<b>0.65</b>	...	<b>0.39</b>
Central Provinces . . . . .	Italgat . . . . .	5	...	...	...	...	...	...	...	...	...	...	...
Madras . . . . .	Kistna . . . . .	7	...	...	...	...	...	...	...	...	...	...	...
	Nellore . . . . .	2,920	...	...	...	...	...	...	...	...	...	...	...
	Nilgiris . . . . .	25	...	...	...	...	...	...	...	...	...	...	...
	Salem . . . . .	48	...	...	...	...	...	...	...	...	...	...	...
	<b>TOTAL</b>	<b>3,000</b>	...	...	...	...	...	...	...	...	...	...	...
Rajputana . . . . .	Ajmer-Merwara . . . . .	808	...	...	...	...	...	...	...	...	...	...	...
	<b>GRAND TOTAL (MICA)</b>	<b>16,543</b>	<b>4</b>	<b>5</b>	...	<b>5</b>	<b>6</b>	<b>15</b>	...	<b>15</b>	<b>0.48</b>	...	<b>0.30</b>
<b>C.—MANGANESE ORE.</b>													
Bombay . . . . .	Panch Mahals . . . . .	1,821	...	...	...	...	7	1	6	7	...	...	...
Central Provinces . . . . .	Balaghat . . . . .	6,267	2	...	2	2	...	...	...	...	...	1.37	0.32
	Bhandara . . . . .	1,150	...	...	...	...	...	...	...	...	...	...	...
	Chhindwara . . . . .	1,357	...	...	...	2	4	...	4	...	...	...	...
	Nagpur . . . . .	5,407	2	1	1	2	5	1	4	5	0.24	0.77	0.37
	<b>TOTAL</b>	<b>14,271</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>7</b>	<b>5</b>	<b>4</b>	<b>9</b>	<b>0.07</b>	<b>0.85</b>	<b>0.25</b>
Madras . . . . .	Vizagapatam . . . . .	1,235	...	...	...	...	...	...	...	...	...	...	...
	<b>GRAND TOTAL (MANGANESE)</b>	<b>17,327</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>14</b>	<b>6</b>	<b>10</b>	<b>16</b>	<b>0.07</b>	<b>0.71</b>	<b>0.23</b>
<b>D.—LIMESTONE.</b>													
Burma . . . . .	Northern Shan States . . . . .	86	...	...	...	...	...	...	...	...	...	...	...
Central Provinces . . . . .	Bilaspur . . . . .	308	...	...	...	...	...	...	...	...	...	...	...
	Jabalpur, kutai . . . . .	6,235	2	2	...	2	2	1	1	2	0.12	...	0.32
	<b>TOTAL</b>	<b>6,543</b>	<b>2</b>	<b>2</b>	...	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0.41</b>	...	<b>0.33</b>
Panjab . . . . .	Hoshiarpur . . . . .	80	...	...	...	...	...	...	...	...	...	...	...
	<b>GRAND TOTAL (LIMESTONE)</b>	<b>6,609</b>	<b>2</b>	<b>2</b>	...	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0.40</b>	...	<b>0.33</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 1921—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.		Total number of persons injured.	Below ground.	Above ground.	Below and above ground.	
				Below ground.	Above ground.		Total deaths.	Below ground.					Above ground.
<b>E.—SALT.</b>													
Punjab	Jhelum . . . . .	827	...	...	...	...	2	2	...	2	...	...	...
	Mianwali . . . . .	76	...	...	...	...	...	...	...	...	...	...	...
	Shahpur . . . . .	62	...	...	...	...	...	...	...	...	...	...	...
	<b>GRAND TOTAL (SALT)</b>	<b>965</b>	...	...	...	...	<b>2</b>	<b>2</b>	...	<b>2</b>	...	...	...
<b>F.—GEMS.</b>													
Uttar Pradesh	Katha Mogok (Rubies, etc.) . . . . .	1,242	2	1	1	2	5	...	5	5	1.28	2.18	1.61
Uttar Pradesh	Ajmer (Beryl) . . . . .	11	...	...	...	...	...	...	...	...	...	...	...
	<b>GRAND TOTAL (GEMS)</b>	<b>1,253</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>5</b>	...	<b>5</b>	<b>5</b>	<b>1.28</b>	<b>2.18</b>	<b>1.60</b>
<b>G.—SLATE.</b>													
Uttar Pradesh and Orissa	Monghyr . . . . .	478	...	...	...	...	2	...	2	2	...	...	...
Punjab	Gurgaon . . . . .	221	...	...	...	...	...	...	...	...	...	...	...
	Kangra . . . . .	154	...	...	...	...	...	...	...	...	...	...	...
	<b>TOTAL</b>	<b>853</b>	...	...	...	...	...	...	...	...	...	...	...
	<b>GRAND TOTAL (SLATE)</b>	<b>853</b>	...	...	...	...	<b>2</b>	...	<b>2</b>	<b>2</b>	...	...	...
<b>H.—GOLD.</b>													
Uttar Pradesh and Orissa	Singhbhum . . . . .	13	...	...	...	...	...	...	...	...	...	...	...
Uttar Pradesh	Anantapur . . . . .	535	1	1	...	1	1	...	1	1	9.90	...	1.87
	<b>GRAND TOTAL (GOLD)</b>	<b>548</b>	<b>1</b>	<b>1</b>	...	<b>1</b>	<b>1</b>	...	<b>1</b>	<b>1</b>	<b>9.90</b>	...	<b>1.82</b>
<b>I.—IRON ORE.</b>													
Uttar Pradesh and Orissa	Singhbhum . . . . .	2,280	...	...	...	...	...	...	...	...	...	...	...
Uttar Pradesh	Mandalay . . . . .	163	...	...	...	...	...	...	...	...	...	...	...
	Northern Shan States . . . . .	567	1	1	...	1	1	1	...	1	3.77	...	1.70
	<b>TOTAL</b>	<b>770</b>	<b>1</b>	<b>1</b>	...	<b>1</b>	<b>1</b>	...	<b>1</b>	<b>1</b>	<b>2.36</b>	...	<b>1.30</b>
Uttar Pradesh	Ajmer-Merwara . . . . .	30	...	...	...	...	1	...	1	1	...	...	...
	<b>GRAND TOTAL (IRON ORE)</b>	<b>3,080</b>	<b>1</b>	<b>1</b>	...	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0.51</b>	...	<b>0.32</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 1921—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.	Total number of persons injured.					
<b>J.—WOLFRAM.</b>													
Burma	Mergui . . . . .	50	...	...	...	...	...	...	...	...	...		
	Tavoy . . . . .	1,994	7	7	...	7	9	5	4	0	4.20	...	3.51
	<b>TOTAL</b>	<b>2,044</b>	<b>7</b>	<b>7</b>	...	<b>7</b>	<b>9</b>	<b>5</b>	<b>4</b>	<b>9</b>	<b>4.10</b>	...	<b>3.42</b>
<b>GRAND TOTAL (WOLFRAM).</b>		<b>2,044</b>	<b>7</b>	<b>7</b>	...	<b>7</b>	<b>9</b>	<b>5</b>	<b>4</b>	<b>9</b>	<b>4.10</b>	...	<b>3.42</b>
<b>F.—MOLYBDENITE.</b>													
Burma . . . . .	Tavoy . . . . .	8	...	...	...	...	...	...	...	...	...	...	...
<b>L.—MAGNESITE.</b>													
Madras . . . . .	Salem . . . . .	989	...	...	...	...	2	...	2	2	...	...	...
<b>M.—CHROMITE.</b>													
Baluchistan	Zhob . . . . .	453	...	...	...	...	1	1	...	1	...	...	...
Bihar and Orissa	Singhbhum . . . . .	805	...	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTAL (CHROMITE)</b>		<b>758</b>	...	...	...	...	<b>1</b>	<b>1</b>	...	<b>1</b>	...	...	...
<b>N.—COPPER ORE.</b>													
Bihar and Orissa	Singhbhum . . . . .	2,837	5	4	1	5	5	..	5	5	5.63	0.47	1.76
Central Provinces	Balaghat . . . . .	46	...	...	...	...	...	...	...	...	...	..	..
<b>GRAND TOTAL (COPPER ORE) FOR 1921.</b>		<b>2,883</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>5</b>	...	<b>5</b>	<b>5</b>	<b>5.42</b>	<b>0.47</b>	<b>1.76</b>
<b>O.—BAUXITE.</b>													
Bombay	Kaira . . . . .	221	...	...	...	...	...	...	...	...	...	...	...
<b>P.—CLAY.</b>													
Bihar and Orissa	Bhagalpur . . . . .	121	...	...	...	...	...	...	...	...	...	...	...
	Maubhum . . . . .	70	...	...	...	...	...	...	...	...	...	...	...
	Palamasa . . . . .	386	...	...	...	...	...	...	...	...	...	...	...
<b>TOTAL</b>		<b>577</b>	...	...	...	...	...	...	...	...	...	...	...
Central Provinces	Jabalpur . . . . .	857	...	...	...	...	...	...	...	...	...	...	...
Delhi . . . . .	Delhi . . . . .	84	...	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTAL (CLAY)</b>		<b>1,518</b>	...	...	...	...	...	..	...	...	...	...	...

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 1921—*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.		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>Q.—LEAD ORE.</b>													
Burma . . . . .	Northern Shan States . . . . .	1,420	5	4	1	5	7	5	2	7	4.03	2.84	3.52
Central Provinces . . . . .	Drug . . . . .	84	...	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTAL (LEAD ORE)</b>		<b>1,454</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>7</b>	<b>5</b>	<b>2</b>	<b>7</b>	<b>3.96</b>	<b>2.25</b>	<b>3.44</b>
<b>R.—TIN.</b>													
Bihar and Orissa . . . . .	Hazaribagh . . . . .	18	...	...	...	...	...	...	...	...	...	...	...
Burma . . . . .	Morgul (Maliwan) . . . . .	673	4	4	...	4	...	...	...	...	8.97	...	5.96
	Tavoy . . . . .	915	...	...	...	...	1	...	1	1	...	...	...
	Thaon . . . . .	9	...	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTAL (TIN ORE)</b>		<b>1,613</b>	<b>4</b>	<b>4</b>	<b>...</b>	<b>4</b>	<b>1</b>	<b>...</b>	<b>1</b>	<b>1</b>	<b>4.69</b>	<b>...</b>	<b>2.48</b>
<b>S.—STEATITE.</b>													
Bihar and Orissa . . . . .	Bhagalpur . . . . .	14	...	...	...	...	...	...	...	...	...	...	...
Central Provinces . . . . .	Jabalpur . . . . .	217	...	...	...	...	1	1	...	1	...	...	...
Madras . . . . .	Kurnool . . . . .	15	...	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTAL (STEATITE)</b>		<b>246</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>1</b>	<b>1</b>	<b>...</b>	<b>1</b>	<b>...</b>	<b>...</b>	<b>...</b>
<b>T.—APATITE.</b>													
Bihar and Orissa . . . . .	Singbhum . . . . .	40	...	...	...	...	...	...	...	...	...	...	...
<b>U.—BARYTES.</b>													
Madras . . . . .	Kurnool . . . . .	27	...	...	...	...	...	...	...	...	...	...	...
<b>V.—OCHRE.</b>													
Central Provinces . . . . .	Chanda . . . . .	33	...	...	...	...	...	...	...	...	...	...	...
<b>W.—CALCITE.</b>													
Bihar and Orissa . . . . .	Bhagalpur . . . . .	8	...	...	...	...	...	...	...	...	...	...	...
<b>X.—GRAPHITE.</b>													
Bihar and Orissa . . . . .	Bhagalpur . . . . .	40	...	...	...	...	...	...	...	...	...	...	...
Central Provinces . . . . .	Betul . . . . .	11	...	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTAL (GRAPHITE)</b>		<b>51</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>
<b>GRAND TOTAL (ALL MINERALS)</b>		<b>249,663</b>	<b>232</b>	<b>267</b>	<b>26</b>	<b>293</b>	<b>328</b>	<b>262</b>	<b>87</b>	<b>349</b>	<b>1.72</b>	<b>0.26</b>	<b>1.17</b>

## APPENDIX II—contd.

Table No. 13.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1921, 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 GROUP.
			BELOW GROUP.				ABOVE GROUP.				
			Adult males.	Adult females.	Children (under 13).	TOTAL.	Adult males.	Adult females.	Children (under 13).	TOTAL.	
	Assam, Lakhimpur . . . . .	14	15	...	...	15	...	...	...	...	15
	Naga Hills . . . . .	1	1	...	...	1	...	...	...	...	1
	<b>TOTAL ASSAM</b> . . . . .	<b>15</b>	<b>16</b>	...	...	<b>16</b>	...	...	...	...	<b>16</b>
	Baluchistan { Sibi Khoat . . . . .	7	8	...	...	8	...	...	...	...	8
	{ Quetta-Fishin . . . . .	1	1	...	...	1	...	...	...	...	1
	<b>TOTAL BALUCHISTAN</b> . . . . .	<b>8</b>	<b>9</b>	...	...	<b>9</b>	...	...	...	...	<b>9</b>
	Bengal, Burdwan, Raniganj . . . . .	42	38	7	...	45	2	1	...	3	48
	Bihar and Orissa. { Hazari-bagh. { Bokaro . . . . .	2	2	...	...	2	...	...	...	...	2
	{ Ramgarh . . . . .	5	5	1	...	6	...	...	...	1	6
	{ Giridih . . . . .	3	2	...	...	2	1	...	...	1	3
	{ Jharua . . . . .	90	90	33	...	123	7	4	...	11	134
	Manbhum, Jharua . . . . .	10	12	2	...	14	...	...	...	...	14
	Manbhum, Raniganj . . . . .	2	2	...	...	2	...	...	...	...	2
	Palamau, Daltonganj . . . . .	1	...	1	...	1	...	...	...	...	1
	Sonthal Parganas { Jainty . . . . .	1	1	...	...	1	...	...	...	...	1
	{ Raniganj . . . . .	1	1	...	...	1	...	...	...	...	1
	<b>TOTAL BIHAR AND ORISSA</b> . . . . .	<b>114</b>	<b>114</b>	<b>37</b>	...	<b>151</b>	<b>8</b>	<b>4</b>	...	<b>13</b>	<b>163</b>
	Burma, Southern Shan States . . . . .	1	1	...	...	1	...	...	...	...	1
	Central Provinces { Chanda . . . . .	6	4	1	...	5	1	...	...	1	6
	{ Chhindwara . . . . .	8	6	1	...	7	4	...	...	4	11
	{ Narsinghpur . . . . .	1	1	...	...	1	...	...	...	...	1
	<b>TOTAL CENTRAL PROVINCES</b> . . . . .	<b>15</b>	<b>11</b>	<b>2</b>	...	<b>13</b>	<b>5</b>	...	...	<b>5</b>	<b>18</b>
	Panjab { Jholam . . . . .	1	1	...	...	1	...	...	...	...	1
	{ Shahpur . . . . .	1	1	...	...	1	...	...	...	...	1
	<b>TOTAL PANJAB</b> . . . . .	<b>2</b>	<b>2</b>	...	...	<b>2</b>	...	...	...	...	<b>2</b>
<b>COAL</b>	<b>TOTAL COAL</b>	<b>197</b>	<b>191</b>	<b>46</b>	...	<b>237</b>	<b>15</b>	<b>5</b>	...	<b>20</b>	<b>257</b>

APPENDIX II—*contd.*Table No. 3—*concl'd.*

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1921, 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 GROUPS.
			BELOW GROUPS.				ABOVE GROUPS.				
			Adult males.	Adult females.	Children (under 15).	TOTAL.	Adult males.	Adult females.	Children (under 15).	TOTAL.	
NICKEL . . . . .	Bihar and Orissa, Hazaribagh . . . . .	4	3	2	...	5	...	...	...	..	
MANGANESE . . . . .	Central Provinces { Balaghat . . . . . Nagpur . . . . .	2	...	...	...	.	...	2	...	2	2
		2	1	...	...	1	1	...	...	1	3
	TOTAL MANGANESE . . . . .	4	1	...	...	1	1	2	...	3	4
LIMESTONE . . . . .	Central Provinces, Jabalpur . . . . .	2	1	1	...	2	...	...	...	..	2
LEAD ORE . . . . .	Burma, Northern Shan States . . . . .	5	4	...	...	4	1	...	...	1	5
GOLD . . . . .	Madras, Anantapur . . . . .	1	1	...	...	1	...	...	...	...	1
IRON ORE . . . . .	Burma, Northern Shan States . . . . .	1	1	...	...	1	...	...	...	...	1
WOLFRAM . . . . .	Burma, Tavoy . . . . .	7	7	...	...	7	...	...	...	..	7
GEMS (RUBIES) . . . . .	Burma, Katha, Mogok . . . . .	2	1	...	...	1	1	...	...	1	2
COPPER . . . . .	Bihar and Orissa, Singhbhum . . . . .	5	4	...	...	4	...	1	...	1	5
TIN . . . . .	Burma, Mergui . . . . .	4	4	...	...	4	...	...	...	...	4
GRAND TOTAL (ALL MINERALS) . . . . .		232	218	49	...	267	18	8	...	25	293

APPENDIX II—*conold.*

Table No. 4.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1921, 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 or falling into water.	Hurlage.	Miscellaneous below ground.	Surface.	Total deaths.	Below ground.	Above ground.	Below and above ground.
Coal . . . . .	197	10	75	75	18	...	18	..	32	10	14	257	2.18	0.24	1.35
Lead Ore . . . . .	5	...	1	1	...	...	...	...	...	2	1	5	3.06	2.25	3.44
Gold . . . . .	1	...	...	...	1	...	...	...	...	...	...	1	9.00	...	1.82
Iron Ore . . . . .	1	...	...	1	...	...	...	..	...	...	...	1	0.51	...	0.32
Limestone . . . . .	2	...	...	2	...	...	..	...	...	...	...	2	0.40	...	0.30
Manganese Ore . . . . .	4	...	...	1	...	...	...	...	...	...	3	4	0.07	0.71	0.23
Mica . . . . .	4	...	...	3	...	...	..	...	...	...	...	5	0.48	...	0.30
Gems (Rubies) . . . . .	2	...	...	1	...	...	..	...	...	...	1	2	1.20	2.18	1.00
Tin Ore . . . . .	4	...	...	4	...	...	...	...	...	...	...	4	4.69	...	2.48
Wolfram . . . . .	7	...	5	2	...	...	...	...	...	...	...	7	4.10	...	3.42
Copper Ore . . . . .	5	...	...	1	3	...	...	...	...	...	1	5	5.42	0.47	1.73
TOTAL 1921 . . . . .	232	15	81	91	22	...	20	...	32	12	20	293	1.72	0.26	1.17
TOTAL PRECEDING YEAR . . . . .	177	5	48	40	44	8	12	8	16	11	33	225	1.33	0.40	0.96
DIFFERENCE . . . . .	+55	+10	+33	+51	-22	-8	+8	-8	+16	+1	-13	+68	+0.39	-0.14	+0.21

## APPENDIX III.

## PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901.

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1921.

PROVINCE.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	REMARKS.
Bihar and Orissa	Bokaro-Ramgarh.	1	2	...	Section 20, Rule 3 of Notification No. 864-68-20, dated 10th March 1904.	<i>Withdrawn.</i>
	Giridih	1	3	1	Section 20, Rules 1, 3 and 4 of Notification No. 864-68-20, dated 10th March 1904.	<i>Accused absconded.</i>
	Hazaribagh	2	1	1	Section 20, Rule 1 of Notification No. 11793-103, dated 30th December 1908, as amended by Notification No. 5072-113, dated 1st July 1916.	
	Do.	1	1	...		
	Do.	1	2	2		
	Do.	1	1	1		
	Do.	1	1	1		
	Do.	1	1	1		
	Do.	1	1	1		
	Do.	1	1	1		
	Manbhum	1	1	1		
	Do.	1	1	1		
	Do.	4	1	1		
	Do.	1	2	2	Section 20, Rules 1, 7 and 19 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	2	2	Section 20, Rule 12 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1		
	Do.	1	1	1	Section 20, Rule 3 of Bihar and Orissa Government Notification No. 11761-M., dated 23rd August 1918.	
	Do.	1	5	2	Section 20, Rule 3 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1		
	Do.	1	4	4		
	Do.	1	3	3		
	Do.	1	2	2	Section 20, Rules 3 and 19 of Notification No. 864-68-20, dated 10th March 1904, and Section 21, Special Rule 22.	
	Do.	1	1	...	Section 16	<i>Acquitted.</i>
Do.	1	1	...			
Do.	1	2	2	Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904.	<i>Acquitted.</i>	
Do.	1	1	...	Section 21, Special Rules 5, 77 and 78	<i>Accused absconded.</i>	
Do.	1	1	...	" " " Rule 21	<i>Accused absconded.</i>	
Do.	1	3	...	" " " Rules 5 and 18	<i>Accused absconded.</i>	
Do.	1	3	3	" " " " 5, 7 and 15	<i>Accused absconded.</i>	
Sonthal Parganas.	1	1	...	" " " Rule 7b	<i>Accused absconded.</i>	



APPENDIX III—*concl'd.*PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901—*concl'd.*

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1921—*concl'd.*

PROVINCE.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	REMARKS.
Bengal	Burdwan	1	2	1	Section 20, Rules 1 and 20 of Notification No. 864-68-20, dated 10th March 1904, and Rule 3 of Government of Bengal Notification No. 3970-Com., dated 28th August 1918.	
	Do.	1	2	2	Section 20, Rules 2 (g) and 4 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	2	2	Section 20, Rules 2 (g), 4 and 20 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	} Section 20, Rules 3, 4 and 19 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	2	2		
	Do.	1	3	1	Section 20, Rule 8 of Notification No. 11793-103, dated 30th December 1908, and Rule 4 of Notification No. 864-68-20, dated 10th March 1904 and Section 21, Special Rule 87.	
	Do.	1	2	1	Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 1 of Notification No. 11793-103, dated 30th December 1908, as amended by Notification No. 5072-113, dated 1st July 1916.	
	Do.	1	1	...	Section 21, Special Rule 4 . . . . .	<i>Accused absconded.</i>
	Do.	1	2	...	" " " Rules 4 and 5. . . . .	<i>One accused absconded, the other was acquitted.</i>
	Do.	1	2	...	" " " " 4, 5, 81 and 85 . . . . .	<i>Accused absconded.</i>
	Do.	1	1	...	" " " Rule 5 . . . . .	<i>Acquitted.</i>
	Do.	1	1	1	" " " " 5. . . . .	

APPENDIX IV.  
MISCELLANEOUS.

Statement No. 1.  
List of Inspection Circles.

No. 1 Circle.	No. 2 Circle.
1. All mines in Bihar and Orissa except mines in the district of the Santhal 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.	1. All mines in Bengal.
2. All mines in Baluchistan.	2. Such mines in Bihar and Orissa as lie in the district of the Santhal 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.
3. All mines in the North-West Frontier Province.	3. All mines in Bombay.
4. All mines in the Panjab.	4. All mines in the Central Provinces.
5. All mines in Rajputana.	5. All mines in Madras.
6. All mines in Assam.	6. All mines in Burma.

Statement No. 2.

Names of persons to whom first and second class certificates to manage a coal mine were granted during the year 1921.

(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.
Morrell, Bert . . . . .	260	7th January 1921 . . . . .	678	30th July 1919.
Bartley, William . . . . .	261	Ditto . . . . .	506	26th July 1918.
Sellers, Douglas . . . . .	262	Ditto . . . . .	3,632	9th June 1910.
Millar, Leander . . . . .	263	Ditto . . . . .	221	22nd July 1915.
Walters, Cyril Vernon . . . . .	264	Ditto . . . . .	107	2nd February 1914.
Farrer, John Richard . . . . .	265	Ditto . . . . .	3,038	20th August 1907.
Crawford, Robert White . . . . .	266	Ditto . . . . .	2,984	14th June 1907.
Davies, David John . . . . .	267	Ditto . . . . .	77	2nd February 1914.
Atkinson, Cecil Arthur . . . . .	268	18th January 1921 . . . . .	2,898	7th January 1907.
Allan, John Donaldson Blair . . . . .	269	14th February 1921 . . . . .	578	27th January 1919.
Bell, Joseph . . . . .	270	Ditto . . . . .	631	30th July 1919.
Ensson, John . . . . .	271	Ditto . . . . .	245	26th January 1916.
Wetherell, Thomas Augustus . . . . .	272	23rd December 1921 . . . . .	702	30th July 1919.
Clubb, Alexander . . . . .	273	Ditto . . . . .	3,583	9th June 1910.
Liddoll, Henry Norman . . . . .	274	Ditto . . . . .	4,050	10th June 1912.
Orr, Archibald . . . . .	275	Ditto . . . . .	683	30th July 1919.
Lewis, Robert McLellan . . . . .	276	Ditto . . . . .	744	22nd January 1920.
Lorimer, William Wallace . . . . .	277	Ditto . . . . .	601	27th January 1919.
Wood, Robert . . . . .	278	Ditto . . . . .	854	11th August 1920.
Fisher, Charles Frank . . . . .	279	Ditto . . . . .	2,367	13th May 1904.

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 1921—*contd.*

(b) Certificates of competency.

## FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Campbell, James Brown . . . . .	121	31st March 1921.	
Adamson, Cecil . . . . .	122	Ditto.	
Hyde, George William Albert . . . . .	123	Ditto.	
Connolly, William John . . . . .	124	Ditto.	
Kitchen, Phillip H. . . . .	125	Ditto.	
Aukim, Burton E. . . . .	126	Ditto.	
Hogg, James Sneddon . . . . .	127	Ditto.	
Banorji, Bojoy Krishna . . . . .	128	Ditto.	
Black, Henry . . . . .	129	Ditto.	
Durham, Vivian Clyde . . . . .	130	Ditto.	
Shoehan, Frederic George . . . . .	131	Ditto.	
Conterji, Nriya Gopal . . . . .	132	Ditto.	
Hutton, Alfred Rowland . . . . .	133	Ditto.	
Mukborji, Dharendra Nath . . . . .	134	Ditto.	
Naug, Durga Pada . . . . .	135	Ditto.	
Slator, Robert Anderton Foxcroft . . . . .	136	Ditto.	
Banorji, Niderson . . . . .	137	Ditto.	

## SECOND CLASS.

Villiers, Rudolph Rohling . . . . .	214	31st March 1921.	
Chowdhuri, Surendra Chandra . . . . .	215	Ditto.	
Banorji, Chandra Mohan . . . . .	216	Ditto.	
Banorji, Harendra Chandra . . . . .	217	Ditto.	
Newton, Vincent Sanderson . . . . .	218	Ditto.	
Chakravarti, Dharmapada . . . . .	219	Ditto.	
Banorji, Sudhiraj Kumar . . . . .	220	23rd December 1921.	
Gue, Bama Charan . . . . .	221	Ditto.	
Mair, George Dennis . . . . .	222	Ditto.	
Rawal, Girija Shankar, S. . . . .	223	Ditto.	
Gangull, Manindra Nath . . . . .	224	Ditto.	
Roy, Debi Prasanna . . . . .	225	Ditto.	
Boss, Sudhinda Narayan . . . . .	226	Ditto.	
Chakravarti, Panchananda . . . . .	227	Ditto.	
Chowdhury, Bhaskorendra . . . . .	228	Ditto.	
Trovodi, Ambalal Keshavlal . . . . .	229	Ditto.	
Pandaya, Praujivan Hargovind . . . . .	230	Ditto.	
Banorji, Jitendra Nath . . . . .	231	Ditto.	
Son Gupta, Jitendra Nath . . . . .	232	Ditto.	

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 1921—*concl.*

(b) Certificates of competency.

## SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Mukherji, Balaram . . . . .	233	23rd December 1921.	
Ghosh, Niranjan . . . . .	234	Ditto.	
Chakravarti, Durgapada . . . . .	235	Ditto.	
De, Bhagabati Charan . . . . .	236	Ditto.	
Madath, Hoveceph . . . . .	237	Ditto.	
Gade, Percival Solomon . . . . .	238	Ditto.	
Dutt, Churu Chandra . . . . .	239	Ditto.	
Roy, Aswini Kumar . . . . .	240	Ditto.	
Bhattacharji, Umesh Chandra . . . . .	241	Ditto.	
Das, Sudhir Chandra . . . . .	242	Ditto.	
Chisholm, Joseph . . . . .	243	Ditto.	
Paul, Dobl Prosad . . . . .	244	Ditto.	
Robson, Bertie . . . . .	245	Ditto.	
Kouwon, Charles Glendowe . . . . .	246	Ditto.	
Ganguli, Krishnendra Nath . . . . .	247	Ditto.	
Pallit, Basanta Kumar . . . . .	248	Ditto.	
Banerji, Atul Krishna . . . . .	249	Ditto.	
Mukherji, Jitendra Nath . . . . .	250	Ditto.	
Chatterji, Tara Pado . . . . .	251	Ditto.	
Mukherji, Kamala Kanta . . . . .	252	Ditto.	
Dey, Pran Krishna . . . . .	253	Ditto.	
Dhar, Radhika Ranjan . . . . .	254	Ditto.	
Kothari, Nehalchand Liladhar . . . . .	255	Ditto.	
Bose, Sachindra Nath . . . . .	256	Ditto.	
Chowdhuri, Anil Bhusan . . . . .	257	Ditto.	
Diwas, Tapesh Chandra . . . . .	258	Ditto.	
Chakrabarti, Jogendra Nath . . . . .	259	Ditto.	
Chowdhuri, Panchanan . . . . .	260	Ditto.	
Mukherji, Rama Prosad . . . . .	261	Ditto.	
Bhattacharji, Manoran . . . . .	262	Ditto.	
Sain, Pran Dhon . . . . .	263	Ditto.	
Sircar, Satish Chandra . . . . .	264	Ditto.	
Mukherji, Nitya Hari . . . . .	265	Ditto.	
Roy, Rakhal Chandra . . . . .	266	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.	23rd September 1904.
Glasgow and West of Scotland Technical College in respect of its Diploma in Mining.	23rd 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 Stauford 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 „ 6 „

*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.

B. HEATON,

*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, 1924-25, etc.

(2) The principles of Mechanical Engineering of Coal Mines, 1921-22, 1923-24, etc.

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 1921-23.*

Lectures on the principles of Mechanical Engineering of Coal Mines will be delivered in English as follows:—

## RANIGANJ COALFIELD.

Deshergarh ...	Lecture-room near Club ...	Wednesdays	5-30 P.M.
Raniganj ...	Bengal Coal Co., Ltd., Zamindary 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 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 these scholarships unless they have completed the full years of practical work in the collieries. Preference will be given to those who have satisfied the examiners in both of the lecture course in the coal-fields.

The following Local Committees have been appointed:—

## RANIGANJ COALFIELD.

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

B. HEATON,

*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 COALFIELDS 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 longwall 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 combustions 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 Davy's experiment, types of safety lamps ; firedamp detectors.

## THE PRINCIPLES OF MECHANICAL ENGINEERING OF COAL MINES.

1. *Applied Mechanics*.—Mensuration ; definitions of force, motion, friction, work and energy ; the simple machines ; mechanical and electrical units ; hydrostatics ; the siphon ; pressure of gases ; Boyles' 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*.—Trauways ; 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 rope ways.

7. Simple treatment of coking and byc-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.

BENGAL ENGINEERING COLLEGE,

BOTANIC GARDEN P. O.,

The 10th August 1921.

B. HEATON,  
Secretary.



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 improved syllabus of lectures is being introduced this year.

The following is an abstract of the full three year course—

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

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

*Third year.*— $\left\{ \begin{array}{l} (1) \text{ Elementary Mining Surveying.} \\ (2) \text{ Mechanical and Electrical Engineering.} \end{array} \right.$

Copies of the detailed syllabus may be obtained from the Secretary and the 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 each year's course of lectures. This fee is non-returnable.

*Programme for Session 1921-22.*

Lectures on Mathematics and Elementary Science will be delivered in English on two nights each week at the following centres on days and hours to be fixed by the Lecturer.

Jharia           ...           ...           • ...           Lecture-room near Club.

Sijua           ...           ...           ...           Lecture-room near Station.

The Mining Lecturer will deliver during the current session only the series of lectures on the Principles of Mechanical Engineering of Coal Mines as laid down in the old course one night weekly. These will be attended by students who have qualified in the other part of the old course, namely, in the Principles of Coal Mining.

The course of instruction, will commence in the first week in September and end in the following May. The examination will be held in June. 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 had 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.*

Mr. F. L. G. Simpson, Chairman.  
 „ R. G. M. Bathgate (Jamadoba).  
 „ J. Murray (Kustora).  
 „ J. B. Argyle (Lodna).  
 „ R. Barrowman (Standard Coal Company, Jharia).  
 Babu Jhaveri Lal Kalayan Rai Dholakia (Jyampur Colliery, Kusunda P. O.).  
 „ Narendra Nath Sarkar (South Kujama, Jharia).

*Sijua Centre.*

Mr. F. L. G. Simpson, Chairman.  
 „ A. A. Agabeg (Sijua).  
 „ H. Heron (Bhalgora, Jharia P. O.).  
 „ H. M. Bull (Bansjora).  
 „ G. C. Leach (Sijua P. O.).  
 Babu Trikumdas Doyal (Bullihari Colliery, Kusunda P. O.).  
 „ Meghji Bhimji Relia (Angarpatra).

B. HEATON,

*Secretary, Mining Education Advisory Board,  
 B. E. College, Botanic Garden P. O.,*

*Howrah.*

*The 15th August, 1921.*

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 AND 2ND YEAR COURSES.

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

## 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, Friction, Thermometer, Expansion due to heat, Latent heat of steam, Properties of solids, Liquids and gases, Boyles' Law, Hydrostatics, Elements of electricity and Magnetism, Electrical units.

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

*Mechanics.*—Units of Mass, Length and time, Levers, Pullies, Wedges, Gearing, Simple Machines, Equilibrium, Units of work and energy, Horse Power.

*Mechanical Drawing.*—Conventional signs, Construction of Scales, Nuts, Bolts, Screw threads, simple parts of machines, Engines and Pumps.

## THIRD YEAR COURSE.

*Mining Surveying.*—Use of pens, Scales, protractors, Surveying by means of the chain only. The Miners dial. Loose needle surveying. Fixed needle surveying. Levelling, Field books, Adjustment of Instruments.

## 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 longwall 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 Davy's experiment; types of safety lamps; firedamp detectors.

## 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.

2. *Steam, Electricity and Compressed air.*—Theory of steam boilers and their fittings; the steam engine; the dynamo; the electric motor; Electric Lighting and wiring; the air compressor.

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

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; kops; arrangements of roads on pit bank; tippers; simple screening and sizing; railway sidings; aerial ropeways.

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

B. HEATON,

*Secretary.*

BENGAL ENGINEERING COLLEGE ;

*The 15th August, 1921.*

## 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 date of the examinations and applications on the form prescribed by the Board of Examiners supported by original certificates as to the experience and character, and fees will be received up to a date, duly advertised not less than one month prior to the examinations. No application which is not on the prescribed form will be considered by the Board. No application which is not supported by the certificate and fees referred to above will be considered by the Board if submitted after the advertised date for receiving such applications and fees.

(6) The subjects for examination shall be :—

(a) *Arithmetic and handwriting.*

(b) *Practical and theoretical coal-mining, including surface and under ground arrangements, sinking, timbering, ventilation, gases met with in coal-mines, a know-*

**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 1921.

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.								Grand total below and above ground.
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.				ABOVE GROUND.				
								Adult males.	Adult females.	Children (under 13).	Total below ground.	Adult males.	Adult females.	Children (under 13).	Total above ground.	
Assam	Lakhimpur . . . . .	5	4	1	7	20	269,198	1,732	199	...	1,931	638	201	78	917	2,848
	Naga Hills . . . . .	1	...	1	2	4	42,824	224	...	1	225	268	14	8	285	510
	Sibsagar . . . . .	...	...	...	1*	1	...	...	...	...	...	...	...	...	...	...
	TOTAL	6	4	2	10	25	312,022	1,956	199	1	2,156	906	215	81	1,202	3,358
Baluchistan	Sibi, Khost . . . . .	8	1	7	...	...	31,253	563	...	...	563	388	3	17	408	971
	Quetta-Pishin . . . . .	8	...	8	...	...	10,902	118	...	...	118	50	...	...	50	168
	TOTAL	16	1	15	...	...	42,155	681	...	...	681	438	3	17	458	1,139
Bengal	Bankura, Raniganj . . . . .	3	...	3	2	2	4,985	32	24	...	56	32	23	...	55	111
	Birbhum " . . . . .	8	4	4	1	1	4,352	101	18	...	119	138	117	13	268	387
	Burdwan " . . . . .	257	212	45	177	280	4,250,305	15,825	9,377	138	25,340	12,560	7,046	300	19,975	45,315
	TOTAL	268	216	52	180	283	4,259,642	15,958	9,419	138	25,515	12,730	7,186	373	20,298	45,613

\* Not worked in 1921.

APPENDIX IV—*cont'd.*MISCELLANEOUS—*cont'd.*

## Statement No. 7.

ledge of plans, surveying and levelling, and of the various instruments used in mining. Questions may also be asked upon geology, sanitation, hydraulics, explosives, safety lamps and similar subjects. Candidates may also be required to show how to arrange the ventilation and haulage of a mine on a given plan.

(c) *Practical mechanics*, including steam, steam-engines, steam-boilers, pumps, strength of materials; electricity and compressed air as applied to coal-mining.

(d) *The Indian Mines Act*, and rules made under the Act.

(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.	<i>Viva voce.</i>	Total.	Papers	<i>Viva voce.</i>	Total.
1	2	3	4	5	6	7
(a) Arithmetic and handwriting . . . . .	50	...	50	50	...	50
(b) Mining . . . . .	160	60	220	140	80	220
(c) Mechanics . . . . .	110	40	150	100	50	150
(d) Indian Mines Act . . . . .	60	20	80	60	20	80
<b>TOTAL</b> . . . . .	<b>380</b>	<b>120</b>	<b>500</b>	<b>340</b>	<b>160</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 obtainable 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 which the local examiners intend to put in the examination papers shall be submitted in draft to the Board of Examiners, for approval, at least six weeks before the date of the examination. Answers to questions on arithmetic and those involving calculations and all plottings and levellings must be submitted to the Board of Examiners along with the question papers.

(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.

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

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

## Statement No. 7.

(15) Every candidate before taking his seat 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, free hand 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 30th September, 1921.

R. R. SIMPSON,

*Chief Inspector of Mines in India and ex-officio  
President of the Board of Examiners.*

DHANBAD;

*The 15th February, 1921.*

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

## Statement No. 8.

## DEVELOPMENT DEPARTMENT.

## NOTIFICATION.

*Dated Rangoon, the 14th April 1921.*

No. 19.—In exercise of the power conferred by section 29 of the Indian Mines Act, 1901, as amended by the Decentralization Act, 1914, the Local Government is pleased to exempt the mines specified in the second and third columns of the table below from the operation of the said Act, subject to the proviso, if any, contained in the fourth column:—

Serial No.	Nature of mine.	Locality.	Proviso.
(1)	(2)	(3)	(4)
1	Ruby workings (native mines).	Ruby Mines District.	
2	Twinza oil wells ...	Magwe Division.	
3	Steatite mines ...	Minbu District.	
4	All sand-stone, stone or laterite quarries.	Whole of Burma ...	Provided that no substantial part of such quarries extends beneath the superjacent ground, and also provided that the exemption, hereby conferred, shall cease to apply to any quarry, the further exemption of which the Local Government may, by general or special order, declare to be inexpedient.

By order,

W. BOOTH-GRAVELY,

*Revenue Secretary to the Government of Burma.*

## Statement No. 9.

## DEVELOPMENT DEPARTMENT.

## NOTIFICATION.

*Dated Rangoon, the 11th May 1921.*

No. 21 (CORRIGENDUM).—In this department Notification No. 19, dated the 14th April 1921, for the words "Ruby Mines District" in column 3 of the table subjoined to the notification substitute "Katha District."

By order,

W. BOOTH-GRAVELY,

*Revenue Secretary to the Government of Burma.*

APPENDIX IV—*concl'd.*MISCELLANEOUS—*concl'd.*

## 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.