

Department of Mines, India

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REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA

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

FOR THE YEAR ENDING

31st December 1918

BY

G. F. ADAMS, M. Inst. C. E.

*Chief Inspector of Mines in India*



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SUPERINTENDENT GOVERNMENT PRINTING, INDIA  
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FROM

G. F. ADAMS, Esq., M.Inst., C.E.,  
*Chief Inspector of Mines in India,*

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,  
DEPARTMENT OF COMMERCE AND INDUSTRY.

*Dated Dhanbad, 20th May 1919.*

SIR,

I HAVE the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1918.

### EXPLANATORY INTRODUCTION.

It is necessary to explain that this is a report relating entirely to the administration of the Indian Mines Act, 1901, and is not a complete statistical review of Indian mining and analogous industries. It should be remembered in reading the statistics that there must be a considerable output from quarries which are under 20 feet deep, and, owing to the exclusion of such places from the scope of the Mines Act, these figures should not be regarded as a complete index to the production of the mineral wealth of the country.

Figures of production of all minerals raised in British India and the Native States, whether from workings under the Act or not, are published annually in the Records of the Geological Survey of India, whilst every five years a Quinquennial Review of the Mineral Production of India is issued by the same Department. The latest review published is that for the years 1909-13 (Records, Geological Survey of India, Volume XLVI). Figures for Mysore, where most of the Indian gold is raised, are given in the report of the Chief Inspector of that Native State, and mineral statistics may also be found in the administrative reports of the various Presidencies, Provinces and States of India.

This report is divided into five sections, *viz.* :—

- Section I.—Persons employed.
- „ II.—Output of mineral.
- „ III.—Accidents.
- „ IV.—Prosecutions and additions to the Act.
- „ V.—General remarks.

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#### Section I.—Persons Employed.

During the year 1918 the average number of persons working in and about the mines regulated by the Indian Mines Act was 237,738, of whom 150,064 worked underground and 87,674 on the surface. This is an increase of 25,857 workers or 12.12 per cent.

One hundred and forty-seven thousand two hundred and nineteen were adult males, 82,492 were adult females and 8,027 were children under 12 years of age.

Those employed in coal mines numbered 176,269, which is an increase of 22,586, compared with those employed in 1917.

Labour was plentiful in the coalfields of Bengal and Bihar and Orissa and there was a large increase in the number of people employed. They may be said to have enjoyed a fair share of the prosperity that crowned the coal mining industry. This, compared with scarcity in other districts, probably contributed more than anything else to the plentiful supply.

The Mining Engineer to the Railway Board has permitted a reference to be made to a chart prepared by him, showing the weekly attendance of labour in the Jharia and Raniganj coalfields during the year. This shows that from the high period covered by the 6th to the 10th week to the low period about the 32nd week, more than half the labour in Jharia left the field, while in the other coalfields less than one-third did so. Moreover, the line for Jharia between these periods shows an almost continual drop, while the line for the Raniganj coalfield waves more. The reason for this difference is to be found in the fact that in the Raniganj coalfield more labourers are permanently settled on the collieries than is the case in Jharia, and of those who are not so settled most of the Jharia labourers come from long distances and are not able to come and go between their homes and the collieries in the way in which the others, most of whom live within 20 miles of the collieries, are able to do.

In Assam Sirdari recruiting resulted in 706 labourers being recruited by 276 sirdars, as against 491 in 1917 by 245 sirdars; the figures for Mekranis were 143, as against 113, and for Nepalese 740, as against 949.

In the Pench coalfield in the Central Provinces the health of the labour force was very poor throughout the year, during the latter part of which influenza took a heavy toll. Food supplies were insufficient and colliery owners had to make arrangements to purchase the requirements of their labour and sell the grain even at a loss, in order to keep the miners at work.

In the wolfram mine field in the Tavoy District shortage of labour is still complained of. The indigenous population is ill-adapted for a miner's existence. The Karens of the hill tracts are too few in number to have any influence except as prospectors after their own fashion. The local Burmese will work at tributing, but are irregular and useless for methodical underground practice. The shortage has been partially made up by the importation of Chinese, the influx of Indians of every race and creed and by a certain amount of "ticket-of-leave" labour. The latter under good supervision have proved efficient miners. The Chinese are the mainstay of mining and are good labourers, although it is difficult to get them to do anything except in their own way.

## Section II.—Output of Minerals.

### COAL.

In the last report it was stated that the seventeenth million had been reached for the first time. It has now to be recorded that in 1918 an output of 19,847,039 tons was reached. This is an unprecedented increase of 2,520,655 tons, or 14.55 per cent. over the output in 1917. The opening stocks were 515,874 tons and the closing stocks were 1,785,732 tons. The despatches amounted to 15,920,804 tons and the colliery consumption 1,948,764 tons (9.82 per cent. of the output). The amount of coal delivered to coking was 707,613 tons from which 185,993 tons of hard coke and 210,269 tons of soft coke were made. Analyses of these figures will be found in Appendix 1, Table 2.

As in 1917 this increase was general, the only decrease being in Assam. The output in Bengal increased by nearly two-thirds of a million tons. The chief increase, however, was in Bihar and Orissa, being very nearly one and three-quarters of a million tons.

Of the total output 18,977,911 tons or 95.62 per cent. were raised in Bengal and Bihar and Orissa, the percentage of the previous five years being 95.87. In the last report the difficulty of drawing any comparison between the conditions in 1917 and pre-war conditions was pointed out, and the remark applies with equal force to the year under report. In the last report attention was drawn to the appointment, late in the year, of a Coal Controller and it was stated that

his methods of regulating matters did not affect the period under report. In 1918, however, practically the whole of the trade was under his control. One of the first steps taken was to restrict the output of collieries working the poorer class coals. Whether as a result of this or not, the 25 largest concerns, the great majority of whom in 1917 showed decreases, as compared with the previous year, showed, in the year under report, increases in 18 cases. The general opinion is that the result of the restrictions above mentioned was to induce labour to these larger collieries, although other causes contributed to a general increase of labour supply.

All coal, except that of markedly inferior quality, was requisitioned, at prices fixed by the Controller on the basis of cost of production *plus* a certain profit, the result being that practically every consumer in India received his coal from that officer. There was a certain and very limited amount of free coal, of an inferior character, which naturally, under the circumstances, fetched abnormally higher prices, but, as stated, the amount was very limited, owing to the fact that these collieries were restricted in output and also owing to the fact that requisitioned coal had priority as regards wagons.

In other provinces there was a decrease in Assam, 2.47 per cent. and increases in the Central Provinces, 29.60 per cent. in the North-West Frontier Province (output negligible), 11.62 per cent., in the Punjab, 1.12 per cent. and in Baluchistan 5.74 per cent.

The output per person employed during the year was (a) below ground 181 tons and (b) above and below ground 113 tons. The figures for the five years preceding were (a) 178 and (b) 114. Taking each group of coalfields separately, these figures were as follows:—Bengal and Bihar (a) 185 and 182, (b) 115 and 116; Assam (a) 150 and 159, (b) 96 and 106; Baluchistan (a) 76 and 70, (b) 43 and 45; the Central Provinces (a) 122 and 122, (b) 79 and 82, and the Punjab and North-West Frontier Province (a) 58 and 72, (b) 37 and 18.

The output in England in 1916 was 323 tons per person employed below ground and 251 tons per person employed above and below ground.

This largely increased output would tend to show that Indian colliery owners did not suffer much from scarcity of machinery and plant from overseas. If, however, hostilities had not been suspended when they were and manufacturers in the United Kingdom had not been set free to execute orders from India, many of which were long overdue, the scarcity of materials, especially in the case of wire ropes, would soon have begun to affect the output. The output in Assam was affected to a certain extent towards the end of the year, for want of wire ropes.

#### MICA.

There was a large increase in the output, which was 51,572 cwts. as compared with 35,896 cwts. in 1917, being an increase of 43.67 per cent.

This increase was almost entirely confined to the Bihar and Orissa field, although the Madras field showed a slight increase, as compared with the large decrease given in the last report.

Owing to the demand for war purposes lessees in Bihar and Orissa were urged to increase their output to the highest possible figure. Several licenses were granted to new lessees. The result was the largest output on record. Tonnage was very scarce and insurance rates were heavy. The industry, however, undoubtedly flourished throughout the year.

There was considerable improvement in the industry in Madras also, and, in addition to mining, prospecting was carried out over large areas. Some of these ventures turned out well. The cost of working at some of the older mines has much increased owing to the depth at which they are now worked.

#### MANGANESE.

There was again a considerable decrease in the output, which was 415,357 tons, as compared with 497,052 tons in 1917. This is a decrease of 16.43 per cent.

There was a fair demand for Munition purposes up to the signing of the Armistice, when there was an appreciable lull. The demand on the whole was not, however, as good as in 1917, and the continued shortage of tonnage restricted business.

Prices rose to 41*d.* per unit, but this record figure was due entirely to the further increase in ocean freights, which reached 126½*s.* per ton, with the result that the nett results to the exporter were no better than in the two preceding years.

#### WOLFRAM.

The output decreased, being 72,189 cwts. as compared with 79,312 cwts. in 1917, a decrease of 8·98 per cent. In the last quarter of the year influenza appeared in a severe form and a special inquiry showed that it was responsible for the loss of about 2,000 cwts. in output.

Seven mines produced over 2,000 cwts. as compared with 6 in 1917 and 5 in 1916. These 7 mines are responsible for about 60 per cent. of the output. It is with them that the future mainly lies, and, as they are further developed, they should account for a still larger percentage of the total.

Though tributing still holds the first place as a means of production at present, proper methods of mining are on the increase. Exploration and development work have been carried out, the district has been geologically surveyed and the results put at the disposal of the mining community. The deeper resources of the larger mines are being investigated, air compressors and rock drills installed and crushing and recovery plants designed and erected.

#### GEMS.

The output showed a decrease, being 164,115 carats as compared with 198,200 carats in 1917. This is a decrease of 17·19 per cent. During the whole of the year there was a gradual improvement in the price of both rubies and sapphires, more especially the latter, the demand from Paris for fine blue stones being steadily maintained. The native producers were able to dispose of their finds at better prices than had been known since the war began. The industry generally was no longer affected adversely by war conditions.

#### GOLD.

The output again decreased, being 19,916 ounces as compared with 22,991 ounces in 1917. This is a decrease of 13·40 per cent.

#### COPPER.

Only 3,619 tons were raised as compared with 20,108 tons in 1917. The decrease may be looked upon as temporary.

#### OTHER MINERALS.

There were increases in limestone, salt, slate, bauxite, galena, chromite, clay, tin, steatite and decreases in silver, graphite, magnesite, fuller's earth, samarskite, iron ore, ochre and molybdenite.

Three minerals, apatite, barytes and potash, appear in the Appendix for the first time.

### Section III.—Accidents.

During the year 1918, at mines regulated by the Indian Mines Act, 1901, there were 209 fatal accidents, being an increase of 34 as compared with the number in 1917, and an increase of 56 as compared with the average number of the preceding five years.

In one case 10 lives, in three cases 3 lives, and in twenty cases 2 lives were lost.

These accidents involved the loss of 243 lives, which is an increase of 42 as compared with 1917.

Of these accidents I regard (a) 102 as being due to misadventure, (b) 63 to the fault of deceased, (c) 17 to the fault of fellow-workmen, (d) 3 to the fault of subordinate officials, and (e) 24 to the fault of the management.

Nearly half the increase was in falls of roof and sides. These numbered 110, being an increase of 18 over the previous year. Eighty-four of them occurred in the coalfields of Bengal and of Bihar and Orissa, and of this total the Jharia coalfield contributed nearly two-thirds. This is a serious increase of 30 over the number in 1917 and of 52 over the number in 1916. This increase is very largely due to the fact that every year more collieries reach the second stage of working, which is winning the pillars. It is not many years ago that the number of such collieries was infinitesimal, and work in India was almost entirely confined to the much safer first stage of gallery driving. Thirty-three of these cases were due to misadventure and thirty-eight to the fault of deceased, a fence being crossed, generally to rob pillars unlawfully, in 21 of them. The remaining 13 were however preventable. Eight out of 42 cases of "falls of side" occurred in the wolfram mines of Tavoy.

There were 7 accidents from explosives, causing 9 deaths. In 4 cases gunpowder was ignited on the surface and in 3 cases this occurred when the gunpowder was put out to dry. In one of such cases the management attributed the explosion to the heat of the sun. The Chief Inspector of Explosives is of opinion that this is impossible. He points out that the effect of the sun is to make the powder susceptible to ignition by the slightest friction or spark, the former of which can be caused by some movement or gathering up of the powder after drying. Cases also have occurred, with too great frequency, of explosions of gunpowder in miners' dwellings. While high explosives and detonators are almost invariably treated with caution, sufficient care does not appear in some cases to be exercised in the handling and custody of powder, from the time it is given out at the magazine to when it is taken underground. The wording in the rule under the Mines Act on the subject "it shall not be taken into the mine except in secure cases or canisters, etc." should be enforced from the time the gunpowder is given out from the magazine.

There were 3 fatal explosions of firedamp. Two caused 1 death in each case, but by the third 10 lives were lost. The number of accidents in shafts and by haulage, the next most numerous of underground accidents, increased slightly. There was, however, a considerable increase in accidents on the surface. These numbered 30 as compared with 18 last year and the Tavoy District was responsible for 13 of them.

Electrocution was the cause in three accidents, resulting in one death in each case. This is the same number as in the preceding year. Inefficient earthing was the cause of two of them. The installation of electricity in mines in India is increasing rapidly, and this increase is likely to be still more marked, now that there are more facilities for obtaining materials from overseas.

The death-rate per thousand persons employed was 1.02, while that of the preceding five years was 1.04. At coal mines only, these figures were 1.12 and 1.16, and at mines other than coal .75 and .70. At coal mines in England during the ten years ending with and including 1916, the death-rate per thousand persons employed varied from 1.08 (lowest) to 1.69 (highest).

The death-rate per million tons raised at coal mines only was 9.93, while that of the preceding five years was 10.18. At coal mines in England, during the ten years ending with and including 1916, the death-rate per million tons raised varied from 4.31 (lowest) to 6.37 (highest).

Of the 243 persons killed, 211 were males and 32 were females.

The deaths occurring in each class of mines were as follows:—

One hundred and ninety-seven in coal mines, 27 in wolfram mines, 8 in manganese mines, 3 in mica mines, 2 each in tin, salt and gold mines and 1 each in slate and copper mines.

Twelve persons lost their lives by explosion of gas, 70 by falls of roof, 56 by falls of side, 21 in shafts, 9 by explosives, 6 by irruption of water or falling

into water, 22 by haulage, 16 by other accidents underground and 31 on the surface.

A list of these accidents appears in Appendix II, Table 1. In addition to these there were 43 other accidents, causing the death of 53 persons. These also appear in Appendix II, Table 1, but are listed separately, a reason being given in each case for their exclusion from the statistical tables.

In the Bengal and Bihar and Orissa coal mines, where most of the statistical accidents occur, there were 175 deaths compared with 118 in 1917.

Each accident is described briefly in Appendix II, Table 1, but the following are reported on at greater length. The numbers refer to the numbers in the Appendix.

#### EXPLOSIONS OF FIRE-DAMP.

##### *Bengal Coal Company, Limited's Sitalpur Coal Mine.*

This accident, which fortunately resulted in no loss of life or other casualty, must be classed as one of the most extraordinary in the history of coal mining. It is illustrated by Plates A and B.

A shaft No. 3 had recently been sunk to the Sanctoria seam, which it reached at a depth of 818 feet. It had been fitted with two permanent cages, with wire rope guides. The diameter of the shaft is 16 feet.

The work of driving out in the seam had been commenced, the chief drive being one to connect with another shaft (No. 2), which had been sunk many years ago to the Dishergarh seam, which lies at a depth of 383 feet and with which No. 3 shaft is also connected, and which was being deepened to the Sanctoria seam to ventilate and form a second outlet for the new workings of No. 3 shaft.

From the commencement of driving, gas was met with, and, although temporary arrangements for ventilation were made, by means of a Root's blower, put behind a stopping in a landing in the Dishergarh seam, a  $\frac{1}{2}$ -inch cap was indicated on the safety lamp daily. Later, more gas was met with and the quantity increased to such an extent that it was frequently necessary to withdraw the persons from the mine. At length underground work was restricted to the driving of the connection to No. 2 pit and all available ventilation was concentrated to this drive. Even under these conditions the gas was so strong as to necessitate the withdrawal of the work persons from time to time. Five days before the accident more gas still was encountered, all underground work was stopped and no one was allowed to go down the shaft.

No. 3 shaft then filled with gas to the top, although the Root's blower was kept at work. The manager stated that he could smell the gas in the open air at the top of the shaft.

Five days afterwards at 1-30 P.M., while a thunderstorm was passing over the colliery, a loud report was heard. The manager came out of his house. He noticed that No. 3 shaft head frame was damaged and went to see what had occurred. His description of what he found is as follows:—"I saw two of the corrugated sheets hanging up in the head gear and the iron ladder twisted about. I went to the pit top and found nobody there. I saw that the 'bell box' girders were displaced. After examining the pit bank, I found the flooring was blown out of place on the west side. Two tubs were lying on the ground 14 feet below the bank and the south cage was jammed in the 'keps.' I then formed an opinion that an explosion had occurred in the mine."

The conditions above described can be realised by a reference to the photographs on Plate A. The wrecked pit top and jammed cage are shown in Photo. No. 1. It should be noted that the other cage was at the bottom of the shaft, with the winding rope stretched down. The tub shown in Photo. No. 2 was blown from the pit bank and landed on the ground level, which is 14 feet below the bank, fifty feet away. A corrugated sheet was similarly hurled, being dashed against a wall, in which it made the hole shown in Photo. No. 3.

It was evident that an explosion had occurred in the mine and the management at once endeavoured to ascertain the cause. They satisfied themselves that no fire had been lit on the pit bank and could find no evidence of anyone having gone near the top of the shaft with a light.

When the winding rope of the north cage was examined, it was discovered that in two places, at 228 feet and 278 feet from the surface, respectively, the rope had been rent. Many of the wires were broken and the points were fused. The condition of the rope at 278 feet is shown in Plate B, Photo. No. 1.

There is no doubt that lightning discharges had occurred at these points between the rope and the side of the shaft, and had exploded the fire-damp in the shaft. This explosion of fire-damp caused the wreckage at the top of the shaft.

The distance from the winding rope to the side of the shaft was 5 feet 4 inches. Some of the guides were nearer to the side than the winding rope. They were bolted in the usual manner from the iron headframe at the top of the shaft, while the winding rope passed over the pulley wheels to the winding engine. This particular winding engine was electrically driven. The engine was not damaged and two persons who were in the engine house not injured in any way.

*No. 3.—The Equitable Coal Company, Limited's Dishergarh Coal Mine.*

This explosion, by which 10 lives were lost and 4 other persons were injured by burns, occurred in the Sanctoria seam, and in the workings of No. 3 pit, which is 465 feet deep. The Dishergarh seam has been worked above it at a depth of 115 feet.

Two plans are attached to illustrate this report. Plan A shows the general outline of the workings in this portion of the mine and the scheme of ventilation. The place where the explosion occurred is shown by a black ring on plan A and is shown in detail on plan B.

The Local Government ordered an inquiry under Section 18 of the Indian Mines Act into the circumstances of this accident and such inquiry was duly held by the Collector of Burdwan, with the Chief Inspector of Mines in India and Mr. T. H. Ward, Mining Engineer, as Assessors. A reference is made to their findings hereinafter.

Until shortly before the explosion, No. 3 Pit main east level had been stopped off immediately to the east of the main dip. It was, however, decided to win the pillars lying to the rise of the level. With this idea in view, the stopping was broken down, and arrangements were being made for a new "Jig" road to the rise and for ventilating the rise workings.

It will be seen from Plan A that there were ventilation stoppings along the dip side of the main east level, except at the two dip galleries, close to where the explosion occurred. In order to conserve all the available air for the ventilation of the now rise district, it was necessary to build a stopping in each of these two galleries and stone stoppings, as shown in plan and in section on Plan B, were being built when the explosion occurred, fourteen persons being employed at this work. They all used naked lights.

Attention is now drawn to the goaf lying immediately to the dip of these two stoppings. It was proved in evidence that, while some of these persons were up in the goaf, getting stones for the building of the stoppings, gas was ignited at the naked light of one of them, at the place marked with a black cross on both plans. At this place there was an opening into the goaf, similar to those shown in the sections on Plan B. All fourteen were burnt, with the result, as stated, that ten of them died.

The explosion was local in its effect and there were no signs of force or of coked coal dust.

The explosion occurred at 9 A.M. on a Monday morning. The gang building the stoppings commenced this work on the morning of the previous day. It was established that no test for gas in the goaf was made before the work was commenced on Sunday morning and it is more than doubtful that this gang was visited at all during that day by an official. It is certain that none

of the European officials went there. On the Monday morning, about an hour before the accident, the European overman visited the spot. He has affirmed that he tested for gas with a safety lamp. The thoroughness of his test may be gauged by the occurrence of the explosion an hour afterwards.

Explosions of gas occurred at Disbergarh colliery in 1910, 1915 and 1916, though not in the Sanctoria seam, in which seam, however, gas was not unknown, and from 1905 to the present date there appear to have been several changes in the system of lighting the colliery. After the explosion in 1916, by which 14 persons were killed, safety lamps were reintroduced throughout the colliery and this system was in force until January 1918, when, at the request of the manager, the agent sanctioned the lighting of the whole of the Sanctoria seam with naked lights and this was continued, except in advance drivings where safety lamps were used as a precautionary measure, until the occurrence of the explosion under report.

The summary of the finding of the Court of Inquiry was that the use of naked lights on the day of the explosion did not constitute a breach of the rule under the Indian Mines Act on the subject of the use of safety lamps, but that, in view of the past history of the colliery, the introduction of naked lights in January 1918 in the Sanctoria seam was a grave error of judgment on the part of the management, that the direct cause of the explosion was the want of a thorough examination for gas in the goaf in which the explosion occurred and that there was slackness generally regarding examinations for gas in the Sanctoria seam and reporting thereon.

The colliery is now worked with safety lamps throughout.

#### FALLS OF ROOF.

##### *No. 7.—The Nowagarh Coal Company, Limited's Katras Coal Mine.*

In this case miners were getting stones from a goaf for building material underground. A heavy fall of roof took place in the goaf and one man was killed. In accordance with the rules, the goaf was fenced off, but the place where this man received his injuries was well inside the fence and it appeared to be a practice at this colliery to send workmen beyond the fences to collect stones. It was contended that an official should have been present, but these men were not being supervised.

Accidents due to persons going into goaves are not infrequent and to send miners to such places is to risk their lives, a risk which no amount of immediate supervision can minimise to any extent. When falls occur in goaves, they often do so without warning.

#### FALLS OF SIDE.

##### *No. 101.—The Bansjora Coal Company, Limited's Bansjora Coal Mine.*

A pillar of coal, 24 feet high, was being won from the top downwards and a cut 6 feet wide had been taken along one side of it, just under the roof. A piece of coal broke away from the side and one man, in trying to avoid it, jumped backwards and fell down the 18 feet to the floor, receiving injuries from which he died.

To start a high pillar with a cut along the side under the roof, as in this case, is not a safe operation. It is much better to drive a narrow road, just under the roof, right through the middle of the pillar. This road forms a platform, from which subsequent operations may be undertaken.

##### *No. 67.—The Reliance Coal Company, Limited's Charanpur Coal Mine.*

In this case a pillar, 14 feet high, was being won, the system being to undercut the coal near the floor and then let the roof coal fall. The undercutting had been taken 5 feet in and the only support consisted of 3 or 4 vertical props. A large piece of roof coal fell from between two slips, swaying



out the props, and killed one of the miners. It has been pointed out before that when pillars are being got in this way, it is not sufficient to support the top coal with vertical props only. Unless diagonal struts are added, there is always danger of a big collapse.

Undercutting pillars in course of extraction is not to be recommended in Indian mines. The miners cannot be relied upon to carry out the work without bringing about dangerous conditions. Wherever it is possible to do so, the sides of the pillars should be kept vertical, so as to minimise the possibility of accidents from falls of overhanging coal.

#### IN SHAFTS—OVERWINDING.

##### *No. 114.—The Tata Iron and Steel Company, Limited's Malkera-Choitodih Coal Mine.*

In the report for 1917 an account was given of an overwind at this mine, due to the partial failure of an overwinding and overspeed gear, which was out of adjustment. During the year under report a similar accident occurred at another shaft at this mine except that the gear was by a different maker to that of the one which caused the previous accident. In the more recent case one man was being lowered in one cage, while another man was being raised in the other. An overwind occurred, the gear came into action too late and both men were killed. It is essential that these complicated devices should be kept in perfect adjustment. After this accident another Engineer was appointed. Weekly tests are now made and the results recorded. The Agent of the colliery has reported that on two occasions, since the date of this accident, the device has been automatically brought into action and prevented serious consequences.

#### EXPLOSIVES.

##### *No. 138.—The Bengal Coal Company, Limited's Banksimula Coal Mine.*

In this accident three persons were fatally burnt by an explosion of gunpowder. It was the practice at this colliery for the shotfirers to be supplied by the powder manufacturer with loose powder, which they themselves made into cartridges in or about their houses.

The deceased persons were evidently manufacturing cartridges within a hut in which a fire was burning. The powder became ignited, exploded and burnt them with fatal results.

Accidents of this kind are frequent and it is to be regretted that more careful supervision of the manufacture of gunpowder into cartridges is not exercised.

Since the accident the Agent of the colliery has issued standing orders to the effect that no loose powder is to be issued to miners or shotfirers for the purpose of making cartridges. The powder manufacturer is to supply the cartridges ready for use in the mine, and no cartridges are to be taken to, or stored in, any dwellings on the colliery.

Rules 32 and 34 of Government of India Notification No. 4012-33, dated the 6th June 1914, made under the Indian Explosives Act seem to indicate clearly that the preparation of blasting charges should be done by the licensee only, in a special workshop only and after due notice to the licensing authority.

#### IRRUPTION OF WATER.

##### *No. 139.—The East Indian Coal Company, Limited's Kenduwalih Coal Mine.*

This accident was due to a large volume of water bursting an embankment on the surface during very heavy rain and flooding a mine through subsidences due to goafing operations, with the result that two women and the child of one of them were drowned. There were 155 persons at work in the mine, some of whom narrowly escaped.

This report is illustrated by Plan C. The goafing was commenced about 15 months before the accident and several subsidences to the surface had taken place. The seam is No. 12 and is 12 feet thick. Fourteen feet below it, and connected to it by several drifts, is No. 11 seam, which is 18 feet thick and which has also been extensively worked.

The accident happened shortly after midnight. It was a very stormy night. Rain had commenced falling at about 9 P.M. and by the morning local rain gauges showed a downfall of 7 inches. Of this amount it was estimated that 5 inches fell between 9 P.M. and midnight.

The surface of the north of the goafed area forms the natural drainage of a large extent of country, and, in order to protect the workings, the embankment and drain shown on the plan had been constructed some two years before the accident. The embankment successfully withstood any effects of heavy rain in 1917. Unfortunately the rain on the night of the accident proved too much for it. The embankment was scoured out at the point shown on the plan. As will be seen, this is where the water from two directions met. The result was that the embankment was finally breached at this point. The fact that such a large volume of water rushed suddenly into the mine is fair proof that there was a definite breach of the embankment and that it was not gradually scoured from the top downwards.

The embankment once breached, the water immediately overspread the surface of the goafed area. Its chief entrance into the mine appears to have been at the point shown on the plan.

With the exception of the three deceased and a boy who was afterwards rescued, the miners in both seams escaped through the rise workings and reached the surface through No. 6 Pit.

The persons working in the extreme dip workings of 12 and 11 seams owed their rescue to the action of Hari Manjhi, the Sirdar in charge. He happened to be passing near No. 1 Pit bottom (in No. 11 seam) and, hearing an unusual sound, went to the shaft where he found a large flow of water falling down the shaft from No. 12 seam. He promptly got his workpeople out through No. 11 seam rise workings and No. 6 Pit. The Colliery Company made him a presentation in recognition of his conduct.

The three deceased and the boy were working in No. 12 seam at the point indicated on the plan. The water did not actually flow down this gallery, but on hearing a noise they fled, and, unfortunately fled down into the dip workings, where the three deceased were eventually engulfed. Their bodies were afterwards found at the places shown on the plan. At the place where they were working, floor coal was being cut. The floor of the rise gallery had not been cut and if they had clambered into this gallery over the "bench" of uncut floor coal, they would have been saved.

Five women working in an adjoining gallery to this one also fled, on hearing the noise of the water. Fortunately for them, they fled in the right direction and gained the rise tram level.

The rescued boy had a most fortunate escape. He was found against a fencing in the Main West level of No. 1 pit, in No. 12 seam. He had evidently turned into this level. The fencing had prevented him being swept down the shaft and he was practically uninjured.

The danger of low lying land in proximity to goafed workings or to galleries driven close to the surface has been recognised for many years and much has been done by the management of various collieries to minimise it. The occurrence of this accident should once more draw their attention to it.

#### HAULAGE.

##### *No. 144.—The Tata Iron and Steel Company, Limited's Malkera-Choitodih Coal Mine.*

In this case a miner, who was lying asleep at the foot of an underground haulage plane, was run over by a runaway tub and killed. Inquiry disclosed

the fact that the runaway was due to the opening out of a D link coupling. This coupling was of an unsuitable character. The pin used to keep the bolt in its place was not attached to the coupling and there was, therefore, full opportunity for it not to be inserted. It could not be found after the accident. It was also found that the "drag" was useless. The upper part was too short, with the result that the prongs hung vertically and were unable to come into action.

*No. 156.—The Tetulmuri Collieries, Limited's Tetulmuri Coal Mine.*

Whilst a train of 8 empty tubs was being lowered down a haulage slope, the rope broke and the tubs ran wild, with the result that a man was run over and killed.

The rope was originally  $\frac{7}{8}$ -inch diameter and had been at work at various inclines for  $3\frac{1}{2}$  years. It was found on inquiry that it was so worn that the average diameter had been reduced to  $\frac{1}{2}$ -inch. At the point where it broke there were only 26 wires instead of the full number of 42. These wires were worn and brittle. According to the evidence of various persons the rope had broken from three to six times during the previous three months, and the working load had been reduced to 3 loaded and 8 empty tubs.

On the day before the accident the manager found a bad place in the rope and by his order the rope was cut, about 2 feet of it removed and a pair of sockets put on. The break which caused the accident took place a few feet from the sockets.

The Inspector of Mines, after examining the rope, gave it as his opinion that it was in such a bad condition that it should not have been used, or, if it was used, the load should have been not more than one loaded and three empty tubs.

There was admittedly a great shortage of ropes throughout the year, but this could not be held to justify the use of a rope to the extent of endangering life.

**BY UNDERGROUND MACHINERY.**

*No. 165.—The Benakuri Coal Company, Limited's Benakuri Coal Mine.*

An underground engine-driver had paid out the rope of his engine with the result that some coils of rope were loose on the drum. Whilst endeavouring to straighten and tighten these coils he was carried suddenly on to the drum. At the same time the loose coils of rope brought down on him some corrugated iron sheets which formed a protection board over the engine.

There is no doubt that in some way the engine was accidentally started or accelerated.

On inquiry the condition of the engine was found to be as follows:—The throttle lever, which was a vertical one, was kept back in the shut position by a piece of string. It was so loose that it could be removed by a touch of the hand, and when it was pushed forward and the throttle was full open, the handle of the lever was only one inch from the plate of the drum.

**SUNDRIES UNDERGROUND.**

*No. 176.—The Tata Iron and Steel Company, Limited's Malkera-Choitodih Coal Mine.*

This accident, which resulted in a man being electrocuted, occurred at the bottom of a shaft, which was lighted electrically. The current was supplied at 220 volts, by a lead covered cable, carried by a pair of galvanised wire ropes, suspended from planking on the surface. The man who was killed touched the cable accidentally, fell across it and remained there until removed.

The shaft had just been dewatered, after being flooded for some months. On the morning of the accident the electrician fitted the shaft bottom with

some lights and then reported to the manager that there was a slight leakage of current. The manager told him to cut out the defective part of the cable and he reported about an hour later that he had done so. The manager then went down the shaft and, on examining the cable, felt a slight shock and stationed a man to keep persons away from the cable. He has stated that he then told the electrician to replace the defective cable at once. The latter has denied that he was told to do this at once and has stated that he meant to do it in the afternoon.

The accident was inquired into and reported upon by the Electric Inspector to the Local Government, who considered that the accident was due to the inefficient earthing of the cable sheathing or of the wire supporting ropes, to which the cable was tied at frequent intervals by metal binding wire.

In view of the Electric Inspector's report, a prosecution was instituted against the manager, as detailed in Section IV of the report.

#### NON-STATISTICAL.

##### *No. 23.—The Burrakar Coal Company, Limited's Kantapahari Coal Mine.*

This accident, whereby 5 persons were killed and 6 injured, was due to an explosion at midnight in a railway oil tank wagon, which was being unloaded by colliery work people at a colliery siding. It was inquired into by the Inspector of Explosives, who formed the opinion that the explosion was caused by some one forcibly opening the man-hole cover and introducing a light of some description in order to find how much oil remained in the tank. There is little doubt that this person was one of the deceased. The work was being carried out under the supervision of the Storekeeper, and a prosecution was initiated by the Civil authorities against him and the manager of the colliery, as detailed in Section IV of the report.

### Section IV.—Prosecutions and additions to the Act.

#### PROSECUTIONS.

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

The owner of Babu Bhairab Chandra Pandey's Baromeshia coal mine was prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (b), for not submitting an annual return within the prescribed date. He was fined Rs. 50; in default one month's simple imprisonment.

The owners of the M. V. A. Coal Concern's Joyrampur coal mine were prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (b), for not submitting an annual return within the prescribed date. The Concern was fined Rs. 100.

The owners of the Lohapiti Coal Company, Limited's Lohapiti coal mine were prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (b), for not submitting an annual return within the prescribed date. The Company was fined Rs. 100.

The owner of the Royal Bengal Coal Company's Kusumkanali coal mine was prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (b), for not submitting an annual return within the prescribed date. The case was withdrawn as the accused could not be traced, and could not, therefore, be served with the summons.

The owner of Babu J. N. Mukerjee's North Ekra coal mine was prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (b), for not submitting an annual return

within the prescribed date. The Court held that "in the altered state of his connection with the colliery" it was not possible for accused to submit the return. He was, therefore, acquitted.

The owner of Mussammat Moola Bibi's Suranga coal mine was prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (b), for not submitting an annual return within the prescribed date. She was fined Rs. 20; in default one month's simple imprisonment.

The owners of the Tisra Coal Company, Limited's Tisra coal mine were prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (c), for submitting an incorrect annual return. They were fined Rs. 25.

The owner of Babu Gopal Chandra Bhattacharya's South Barora coal mine was prosecuted under Rules 1 and 11, read with Sections 22(3) (e) and 22(2) (c), for neglecting to provide a second outlet to the mine and for producing an inaccurate plan showing the position of the alleged second outlet. He was fined Rs. 100 on the first charge and Rs. 50 on the second; in default one month's simple imprisonment on each charge.

The manager of Messrs. P. Mookerji and Company's New Pipratand coal mine was prosecuted under Rule 3, read with Section 22(1) (e), for not keeping secure the sides of an incline. He was fined Rs. 50; in default one month's simple imprisonment.

The owner and agent, manager, overman and sirdar of the Laxmi Colliery Company's Parbad Pahari coal mine were prosecuted under Rule 3, read with Section 22(1)(e), for not keeping safe the sides of the quarry. They were fined Rs. 25, Rs. 50, Rs. 50 and Rs. 10, respectively.

The owners and manager of Munshi Jafar Yusuf and Sons' Kapasara coal mine were prosecuted under Rule 7, read with Section 22(3)(e), for not fencing off disused working places in the mine. The owners were acquitted. The manager was fined Rs. 50; in default a fortnight's simple imprisonment.

The owners, agent and manager of the North Angarpatra Coal Company's Kasalpur coal mine were prosecuted under Rule 12, read with Section 22(2)(b), for not submitting a plan of an abandoned mine. The owners and manager were fined Rs. 30 each and the agent Rs. 50; in default two weeks' simple imprisonment.

The owner and manager of Babu Dyabhai Trivedi's Rajpura coal mine were prosecuted under Rule 19, read with Section 22(3)(e), for not keeping a quarry properly fenced. He was fined Rs. 50; in default one week's simple imprisonment.

The owner of Babu Upendra Nath Mukherji's Rajpura coal mine was prosecuted under Rule 19, read with Section 22(3)(e), for not keeping the quarry and openings to the mine properly fenced. He was fined Rs. 100; in default one month's simple imprisonment.

The owner of Babu Lalu Bhai Patel's Rajpura coal mine was prosecuted under Rule 19, read with Section 22(3)(e), for not keeping disused portions of the mine properly fenced. He was fined Rs. 50; in default one month's simple imprisonment.

The owners (three) and manager of Messrs. R. M. Paul and Others' Rajpura coal mine were prosecuted under Rule 19, read with Section 22(3)(e), for not keeping the quarry properly fenced. The manager was fined Rs. 30; in default one month's simple imprisonment. The case against the owners was dismissed.

The owner of Babu Umesh Chandra Mukherji's Borachack coal mine was prosecuted under Rule 7, read with Section 22(3)(e), for not fencing off disused working places in the mine. He was fined Rs. 75.

The owner of the South Ghusik Coal Company's New Muslia coal mine was prosecuted under Rule 12, read with Section 22(2)(b), for not furnishing a plan of a discontinued mine. He was fined Rs. 15.

The agent and manager of Babu F. K. Dutt's Mouthdih coal mine were prosecuted under Rule 19, read with Section 22(3)(e), for not properly fencing the shafts and quarries in the mine. They were each fined Rs. 50.

The manager of Quan Cheng Tock's Anyappa wolfram mine was prosecuted under Rule 14 of the Mines Act Rules, Burma (1917), read with Section 22(1)(e), for permitting shots to be fired by an incompetent person. The case arose out of a "serious" accident. He was fined Rs. 25.

The manager of the Tavoy Concessions, Limited's Kalonta wolfram mine was prosecuted under Rule 14 of the Mines Act Rules, Burma (1917), read with Section 22(1)(e), for permitting shots to be fired by an incompetent person. The case arose out of a "serious" accident. He was fined Rs. 25.

The manager of the Tata Iron and Steel Company, Limited's Malkera coal mine was prosecuted under Rules 40 and 41 of the Indian Electricity Act. The case arose out of "fatal" accident No. 176. He was fined Rs. 100.

The manager of the Equitable Coal Company, Limited's Jamuria coal mine was prosecuted under Rule 20, read with Section 22(1)(e), for not fencing the pulley on the "tension bogie" on an endless haulage system in the mine. The case arose out of non-statistical "fatal" accident No. 14. He was fined Rs. 100.

The manager of the Burrakar Coal Company, Limited's Kantapahari coal mine was prosecuted under Section 15(e) of the Indian Petroleum Act. The case arose out of non-statistical "fatal" accident No. 23. He was fined Rs. 10. In connection with the same case the Storekeeper at the colliery was prosecuted for a breach of Section 285 of the Indian Penal Code and was fined Rs. 100; in default one month's rigorous imprisonment.

Information was received regarding the following judgments in prosecutions initiated by managers against employees for breaches of the Special Rules made under Section 21 of the Act.

A coal cutter at J. Boisogomoff and Company's Radhaballabpur coal mine was prosecuted under Rules 5, 7, 15 and 21 read with Section 22(1)(e), for entering a disused portion of the mine, with a companion, and cutting coal there. The case arose out of "fatal" accident No. 13. He was sentenced to one month's rigorous imprisonment.

A fitter at Messrs. D. N. Ghosh and Brother's Tetturia coal mine was prosecuted under Rule 4 read with Section 22(3)(e), for absenting himself from duty without leave. He was fined Rs. 10; in default 14 days' simple imprisonment.

A fitter at the Bengal Coal Company, Limited's Sodepur coal mine was prosecuted under Rule 5, read with Section 22(1)(e) for being underground in a state of intoxication. He was acquitted under Section 217, Criminal Procedure Code, as the complainant (manager) did not appear to prosecute.

Information was received of 4 other cases, which could not be tried, as the accused either absconded or died.

Three permits to manage small mines were 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 32 coal mines, making a total of 500.

The Governments of Bengal and of Bihar and Orissa framed rules under Section 20 of the Act for providing adequate acquaintance on the part of coal mine officials with the number of persons working in a mine at any given time. The Government Notification publishing these rules appears in Appendix IV, Statement No. 7.

## Section V.—General Remarks.

### PRESENTATION OF EDWARD MEDALS.

In the last report an account was given of an accident at the Burrakar Coal Company, Limited's Gourandih coal mine, and of the rescue of two miners by Mr. C. H. Whiffen, the assistant manager, Bideshi Kol, a sirdar, and four workmen. His Majesty the King-Emperor was pleased to award the Edward medal in silver to Mr. Whiffen and to Bideshi Kol, and the same medal in bronze to each of the four workmen, Rupai Kol, Suku Kol, Jadu Kol and Budhu Kol. These medals were presented to them by His Excellency the Viceroy at Howrah Station on the 10th December 1918.

### HEALTH AND SANITATION.

The Asansol Mines Board of Health held 9 ordinary and 3 special meetings. There were 3 changes in the personnel of the unofficial members. Compulsory notification of changes in the names of collieries or of their owners, agents and managers was brought into force. A general order was issued, prohibiting the burning or burial of corpses at places other than the 78 burning ghats and 17 burial grounds maintained by the Board or the 183 burning ghats approved by them. Lectures on sanitation and hygiene in the collieries and villages were continued and were greatly appreciated.

An investigation into the existence of hook-worm disease amongst colliery labour and the agricultural population of the settlement was carried out. It was found that at least 65 per cent. of the colliery labour, and 39 per cent. of the agricultural population were affected with the disease. An anti-malaria survey of the settlement was commenced.

There were 442 cases of cholera and 225 deaths, the figures for small-pox being 80 and 7, as compared with 226 cases of cholera and 138 deaths and 320 cases of small-pox and 92 deaths in 1917. Influenza broke out in the mining settlement during the latter part of the year. The deaths reported were 527 and those from pneumonia, most of which were probably due to influenza, were 681.

The Governor in Council, in a letter addressed to the Chief Inspector of Mines in India, desired to record his satisfaction at the success attained by the sanitary measures introduced by the Board for promoting the general health of the mining area.

The Jharia Mines Board of Health held 18 ordinary and 5 special meetings. There were two changes in the personnel of the unofficial members. The Epidemic Diseases Act remained in force during the whole year and was administered by the Chief Sanitary Officer, who continued to be the authority appointed under the Act. The regulations were extended to make provision for the prevention of plague. The vaccination staff was double.

There were 639 cases of cholera and 238 deaths, the figures for small-pox being 74 and 5, as compared with 698 cases of cholera and 314 deaths and 148 cases of small-pox and 4 deaths in 1917. The death-rate from influenza was very great, but no actual figures are available.

The Lieutenant-Governor in Council recorded his appreciation of the good work done by the members of the Board and by the Chief Sanitary Officer.

The following deaths from influenza at mines have also been reported:—Thirteen hundred and ninety-five deaths in the manganese mines of the Central Provinces, 50 deaths in the Anantapur gold mines, 221 deaths in the coalfields outside Bengal and Bihar and Orissa and 165 deaths at the Shivrajpur manganese mines in the Bombay Presidency.

There were 109 deaths from cholera in the Bihar and Orissa mica fields.

The rainfall in the Jharia coalfield was 43·63 inches, in the Giridih coalfield it was 35·70 inches, in the Raniganj coalfield it was 33·11 inches and at the new Jharia Water Works it was 47·49 inches. The figures for 1917 were 72·09, 69·16, 71·9 and 72·87 inches, respectively.

**MINING EDUCATION.**

The Professor of Mining at Sibpur College has reported that during the session 1916-17 there were six students in the Senior course, of whom five gained diplomas. In the Junior course 24 were enrolled at the beginning of the session, 12 sat for the examination and 10 qualified for promotion to the Senior course. At the commencement of the session 1917-18 there were 10 students enrolled in the Senior course and 20 in the Junior course. Of these, 2 in the Senior and 2 in the Junior course were special students. In the annual examination 7 students gained diplomas, while 12 qualified for promotion from the Junior to the Senior course.

The annual mining camp was pitched at Baneadih in the Giridih coalfield. Forty-five students were present. The usual courses of practical work were undertaken. Seven special survey students attended.

A special experimental plant in connection with the mining department of the college has recently been erected to test the coking property of coal and estimate the tar, ammonia and other bye-product contents of the coal examined.

The Mining Education Advisory Board held 4 meetings during the year. The Bengal Government sanctioned a scheme providing for qualified students of schools of land surveying being trained in mine surveying. The Board adopted certain improvements in the scheme of lectures delivered by the Mining Instructor and ordered the levy of a fee of Rs. 5 from each candidate for attendance during the session. The average attendance at these lectures was 33.9, as compared with 23.3 in the previous year.

The sessional examination was held in May, the examiners being Messrs. H. Lancaster, Inspector of Mines in India, and E. H. Robertson, Professor of Sibpur College. Forty-three candidates sat for examination and 26 passed. Mr. V. C. Durham obtained the highest marks. The Examiners reported that the papers on the average were good, though not up to last year's standard, that the sketching in particular had fallen off and that some of the answers were unnecessarily long.

The Bengali and Hindi lectures were also delivered.

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

The personnel of the Board remained unchanged. Mr. T. H. Ward's term of office of three years expired on the 2nd May. He was pleased to offer his services for a further term and was reappointed.

Five meetings were held during the year.

One first class Indian certificate of competency was granted in lieu of an English certificate, and nine first class, and seven second class certificates of service were granted during the year.

At the examination for Colliery Managers' Certificates of Competency, held at Dhanbad on the 20th, 21st and 22nd February 1918, sixty-three candidates sat for first class, and seventy-four for second class certificates. Certificates of competency were granted to ten first class and twenty-four second class candidates.

The Examiners were Messrs. W. S. Elphinstone, J. Mackie and R. R. Simpson, Inspector of Mines, No. 1 Circle (Official Examiner and Secretary), Mr. H. Lancaster, Inspector of Mines, No. 2 Circle, was Assistant Secretary.

During the year the Government of India were pleased to direct that in future there should be separate examinations, with separate examiners, for first and second class candidates.

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

The Bengal Mining Board held two meetings during the year, when the following subjects were considered:—

- (1) Proposal for the appointment of a Committee composed of experts to consider and report upon the most effective and economical methods of coal extraction.



**(2) Constitution of the Asansol Mines Board of Health.**

The non-official members were Messrs. W. Graham and Glen George.

The Bihar and Orissa Mining Board held one meeting during the year when the following subjects were considered :—

- (1) Draft rules under Section 20 of the Indian Mines Act, 1901, for providing adequate acquaintance on the part of coal mine officials with the number of persons working in a mine at any given time.
- (2) Amendment of Rule 35 of the rules issued under the Bengal Mining Settlement Act, 1912.
- (3) Framing of a new rule under Section 11 (2) (E) of the Bengal Mining Settlement Act, 1912, with a view to simplify the work of collecting vital and other statistics by the Jharia Mines Board of Health.

The non-official members were Messrs. T. H. Ward and R. G. M. Bathgate.

The Central Provinces Mining Board held no meeting during the year. The non-official members of the Board were Messrs. F. L. G. Simpson and H. D. Coggan.

**MINING AND GEOLOGICAL INSTITUTE OF INDIA.**

The total membership at the end of the year, including subscribers, was 278. In addition to the annual meeting, one ordinary meeting was held, at which papers were read and discussed and visits were paid to three mines. The field work for the preparation of the Geological map of the Jharia coalfield was continued. It was found necessary to re-survey the railways and roads and to prepare entirely new sheets. The work of the Subsidence Committee was also continued. The Government prize for the best paper during the year was awarded to Mr. E. H. Robertson for his paper on "Some Notes on the Manufacture of Fuel Briquettes." The Institute medals were awarded as follows :—

- (a) The Gold medal to Mr. E. H. Robertson for his above mentioned paper ;
- (b) the Silver medal to Mr. Edwin J. Beer for his paper on "Notes on Rocks from Pavagarh to Dohad" ; and
- (c) the Bronze medal to Mr. C. H. McCale for his paper on "Welding Pit Guide Ropes and some Methods of Welding."

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

The membership of the Association increased from 190 to 196.

The Council has been engaged with questions relating to the granting of service certificates, the manufacture of gunpowder, epidemic diseases and temporary hospitals, the qualifications of colliery doctors, and the representation of the Association of Mining Board and Committees. One visit was paid to a large works in the district.

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

The number of original cases disposed of altogether at the end of 1918 stood at 327, nineteen of which were cases disposed of during the year.

**OFFICIAL DUTIES, 1918.**

Mr. G. F. Adams was Chief Inspector of Mines in India.

Mr. R. R. Simpson was Inspector of Mines, No. 1 Circle. From the 1st January to the 22nd February, he held charge of No. 2 Circle in addition to his own duties.

Mr. H. Lancaster was confirmed in his appointment of Junior Inspector of Mines and was promoted to be Inspector of Mines, No. 2 Circle, on the 23rd February.

Mr. J. Coggin Brown, Assistant Superintendent, Geological Survey of India, continued to be an Inspector of Mines for mines situated in the Tavoy District of Lower Burma.

Mr. J. J. Turnbull was a Junior Inspector of Mines. He was granted privilege leave from the 1st October to the 10th November.

The vacancy caused by the retirement of Mr. G. C. Leach was not filled during the year and the department was short-handed to the extent of one Junior Inspector.

In addition to the ordinary work, the Department continued to deal with applications for priority for the importation of machinery and plant from the United Kingdom. Three hundred and thirty cases were inquired into during the year. The personnel of the Mines Equipment Priority Committee was the same as stated in the last report.

I have the honour to be,

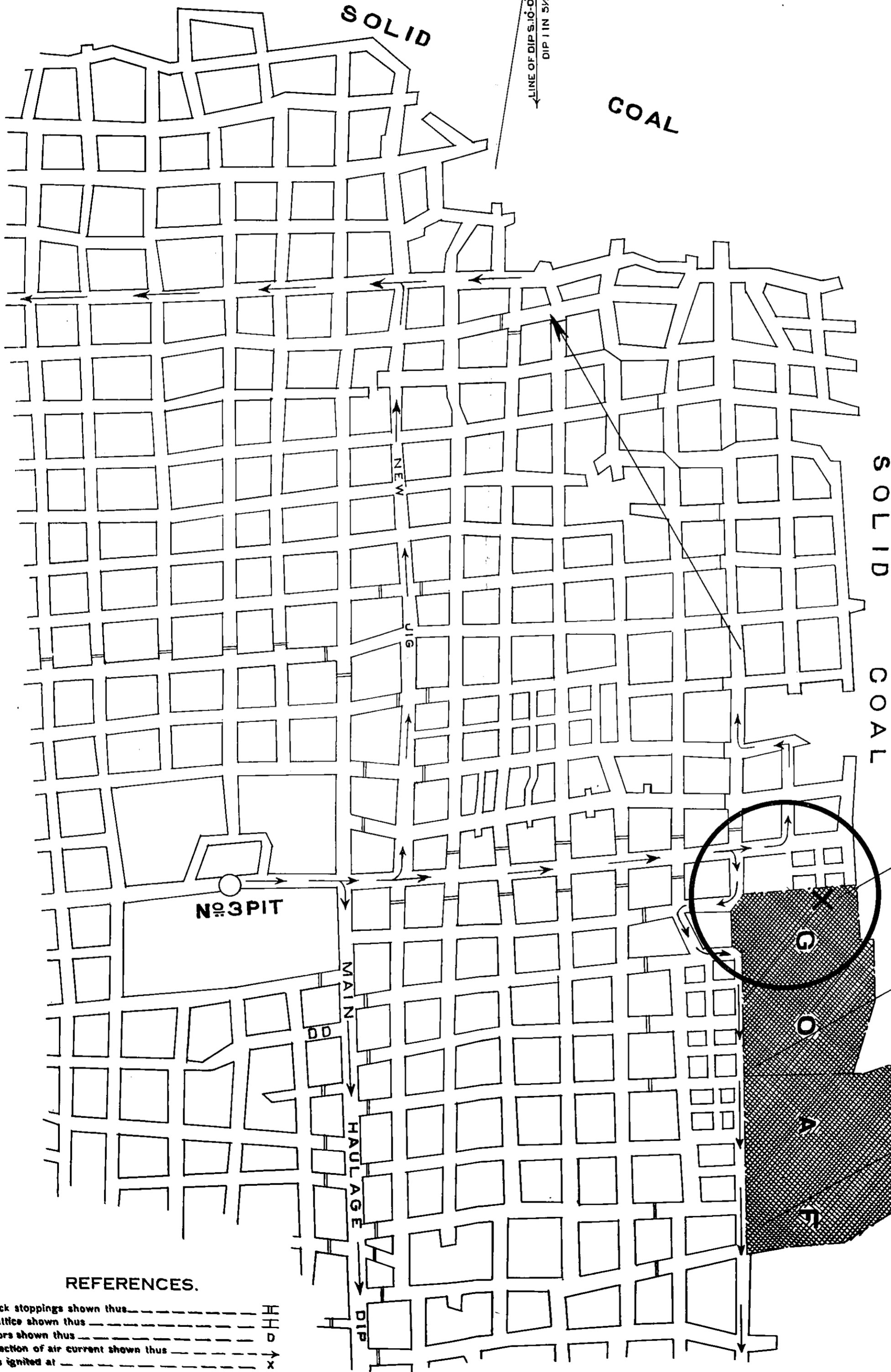
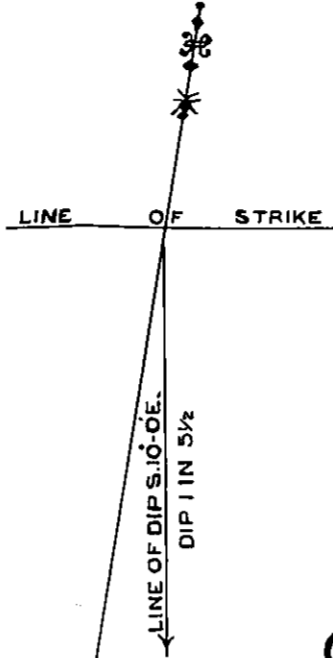
SIR,

Your most obedient Servant,

G. F. ADAMS,

*Chief Inspector of Mines in India.*

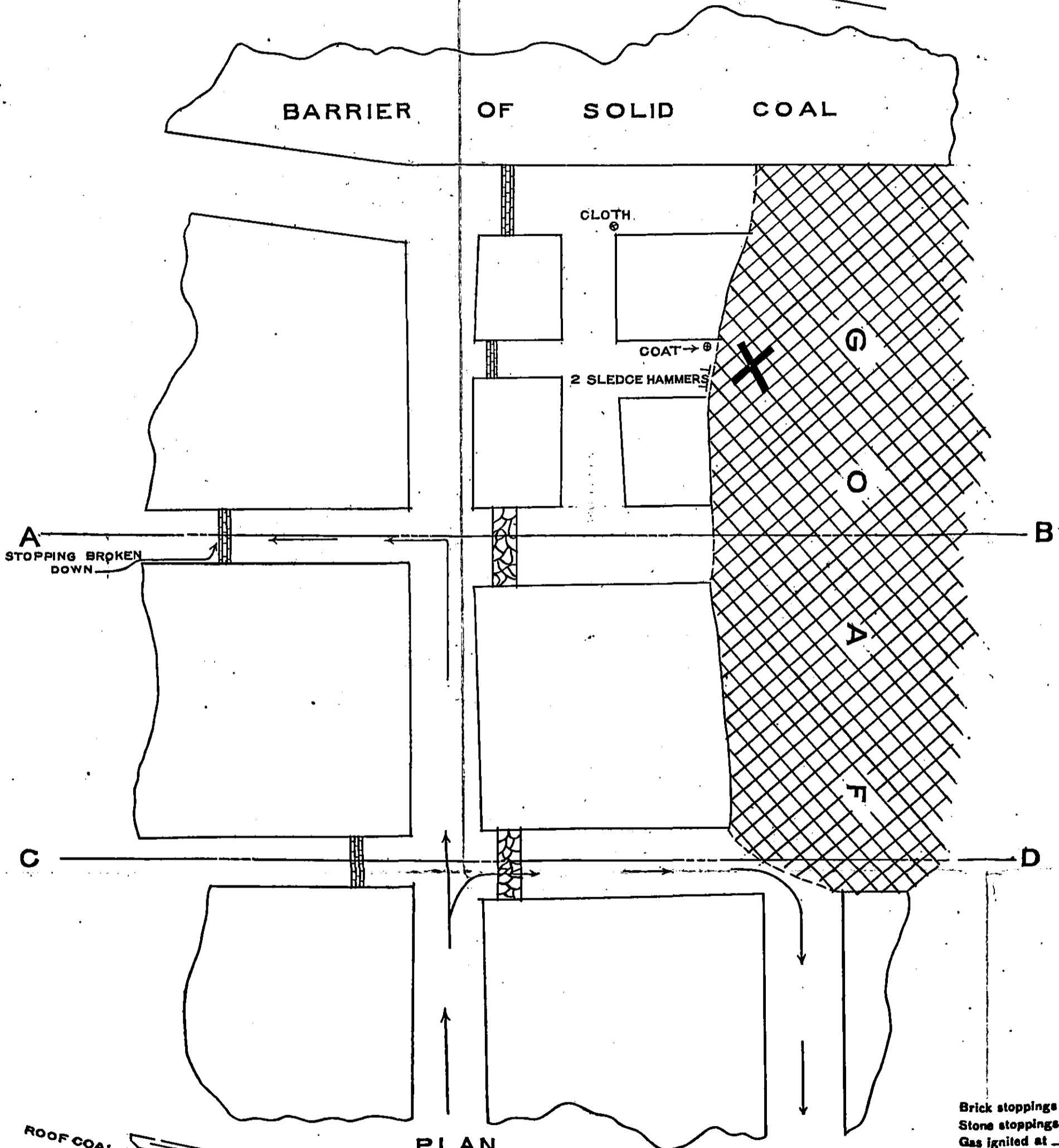
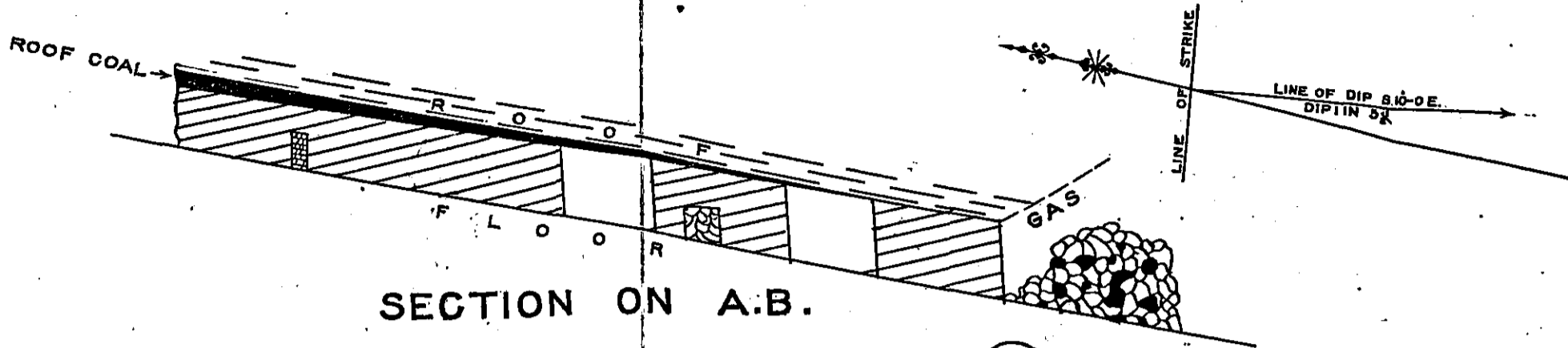
PLAN ILLUSTRATING REPORT ON  
AN ACCIDENT BY EXPLOSION OF FIRE DAMP  
AT  
THE EQUITABLE COAL Co. LTD.'S DISHERGARH MINE.  
SCALE 1 INCH=100 FEET.



REFERENCES.

- Brick stoppings shown thus HH
- Brattice shown thus H
- Doors shown thus o
- Direction of air current shown thus x
- Gas ignited at x

# PLAN ILLUSTRATING REPORT ON AN ACCIDENT BY EXPLOSION OF FIRE DAMP AT THE EQUITABLE COAL Co. LTD.'S DISHERGARH MINE.



### REFERENCES.

- Brick stoppings ————
- Stone stoppings ————
- Gas ignited at ———— X

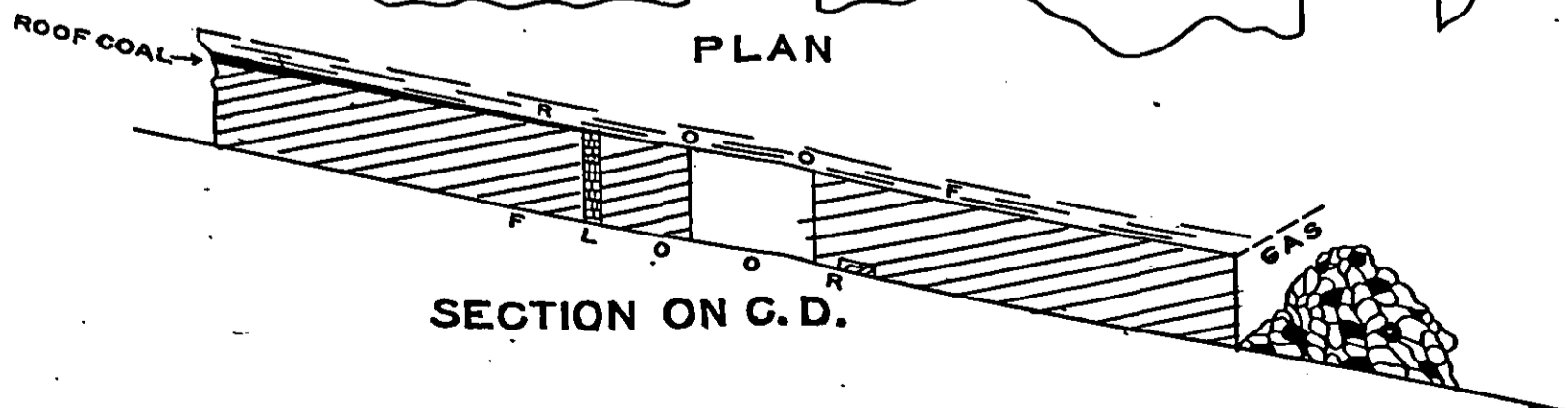


PLATE ILLUSTRATING REPORT ON EXPLOSION OF  
FIRE DAMP  
AT  
THE BENGAL COAL Co., Ltd.'s SITALPUR COAL MINE.

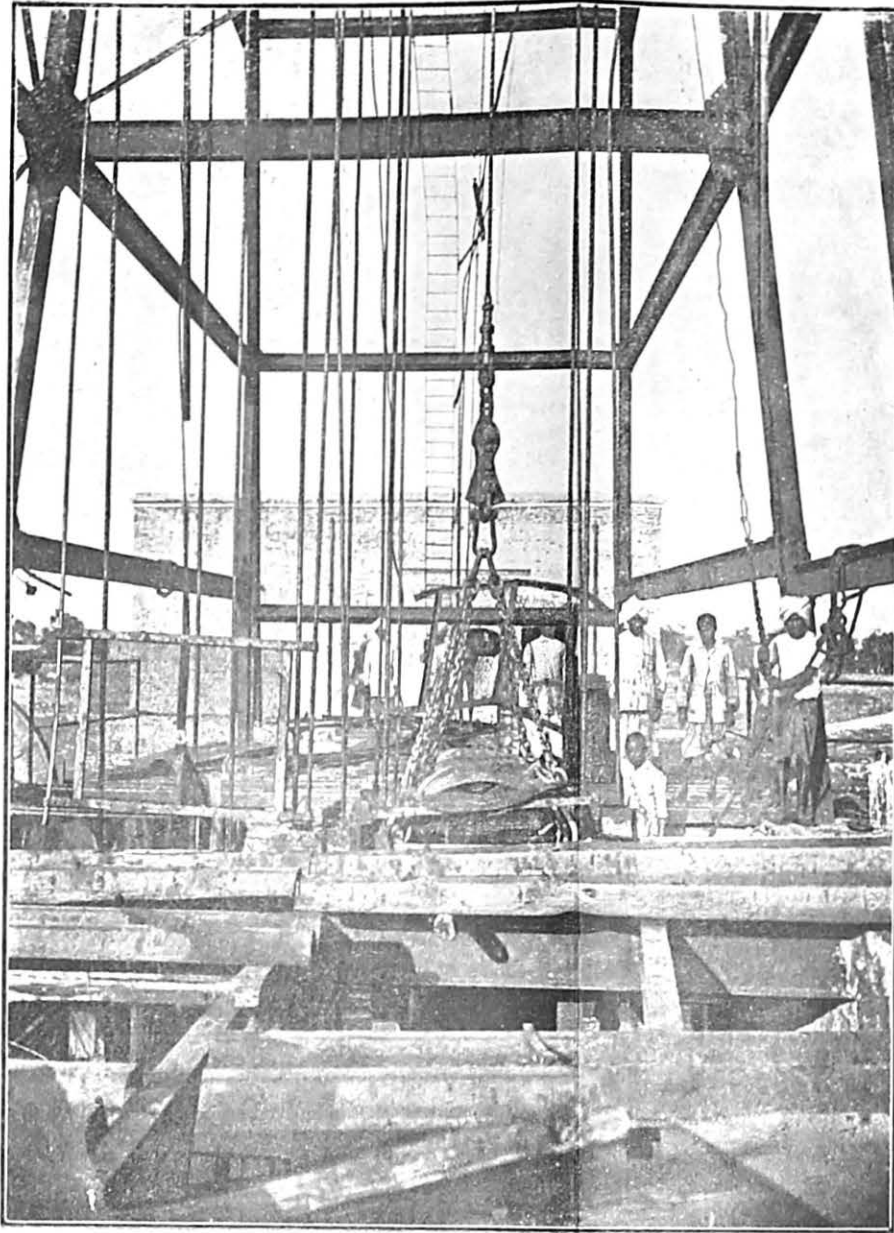


PHOTO 1

Photograph showing how pit bank was wrecked

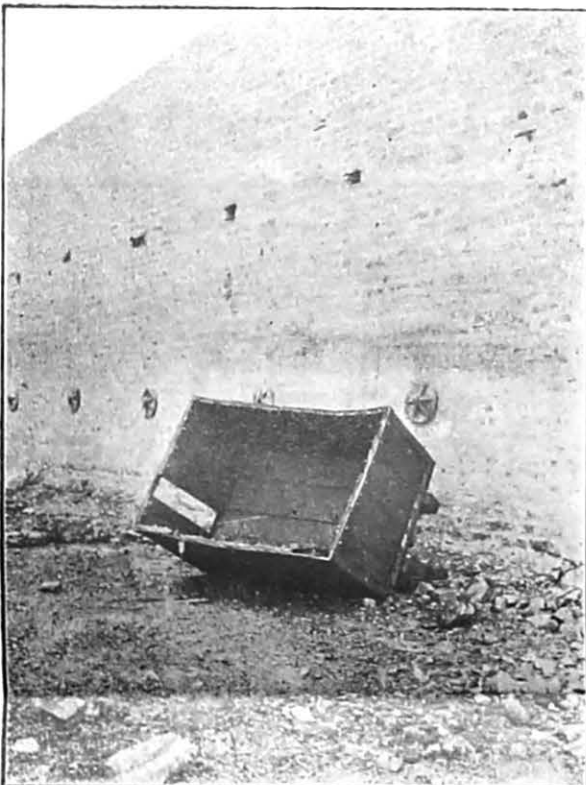


PHOTO 2

Photograph showing tub which was  
hurled 50 feet

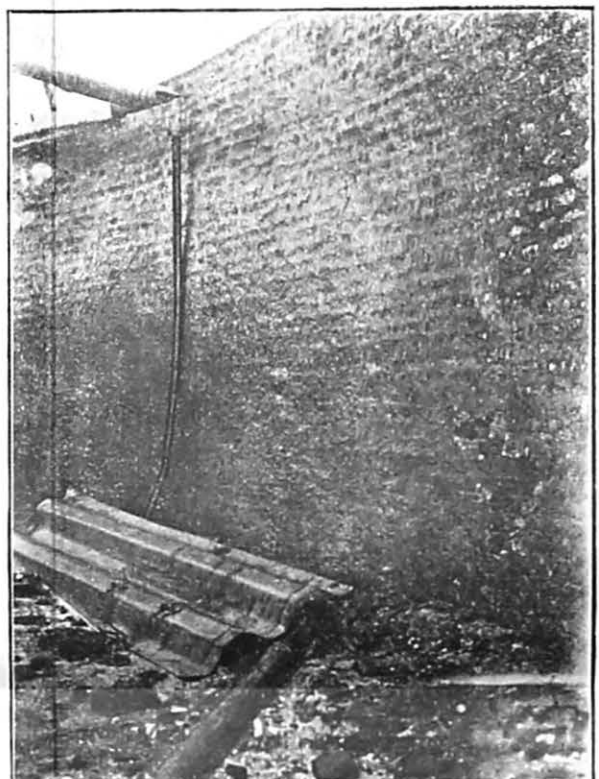


PHOTO 3

Photograph showing corrugated sheet  
which was hurled 50 feet

PLATE ILLUSTRATING REPORT ON EXPLOSION OF  
FIRE DAMP  
AT  
THE BENGAL COAL Co., Ltd.'s SITALPUR COAL MINE.

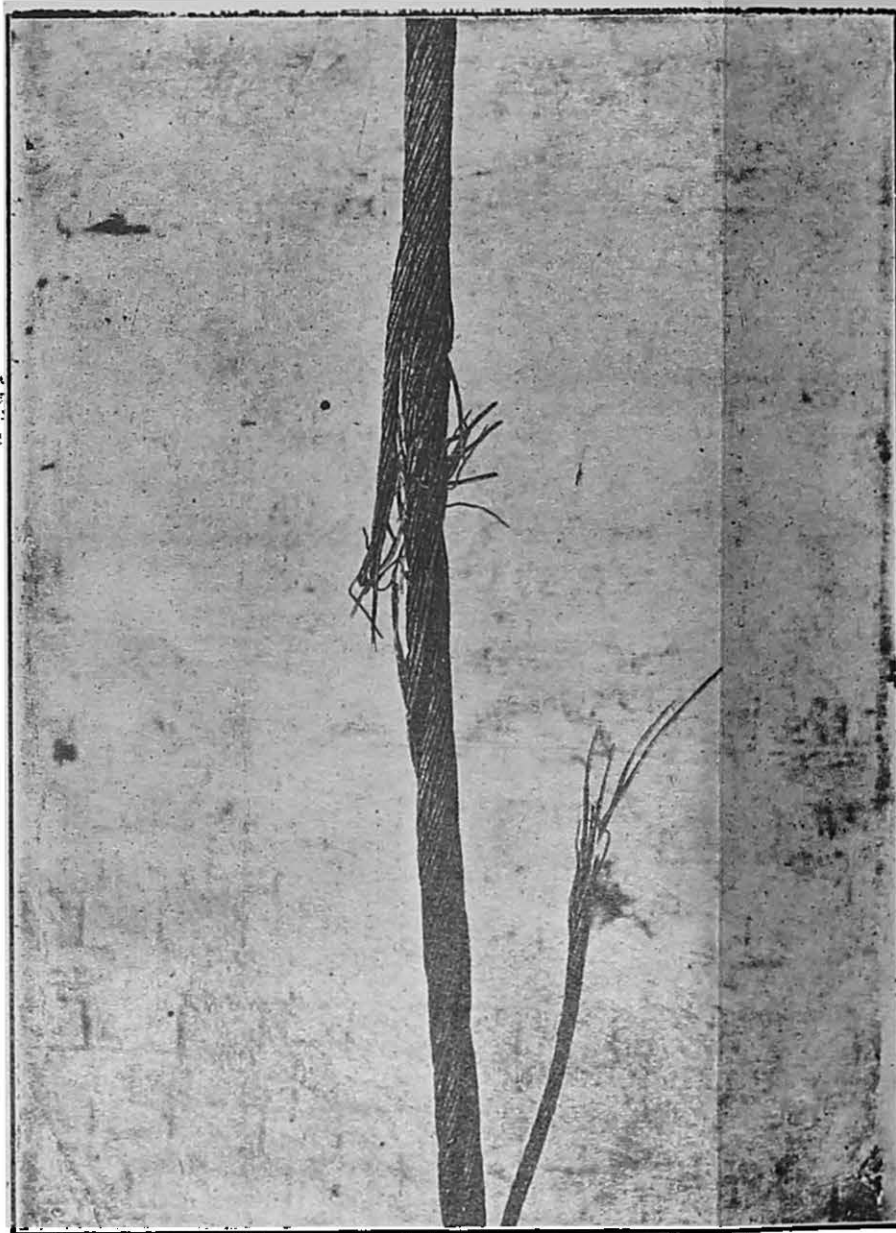


PHOTO 1

Photograph showing where rope was rent 278 feet  
from surface

## 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 1918.

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 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
Assam	Lakhimpur . . . . .	6	4	2	7	11	267,749	1,586	174	...	1,760	579	203	75	857	2,617
	Naga Hills . . . . .	2	...	2	1	2	21,299	162	1	1	164	179	25	2	206	370
	Sibsagar . . . . .	1	...	1	1	1	1,827	31	1	...	32	34	2	...	36	68
	<b>TOTAL</b>	9	4	5	9	14	293,875	1,779	176	1	1,956	792	230	77	1,099	3,055
Baluchistan	Kalat . . . . .	5	...	5	...	...	4,511	57	...	...	57	21	...	...	21	78
	Loralai . . . . .	1	...	1	...	...	149	15	...	...	15	5	...	...	5	20
	Quetta-Pishin . . . . .	13	...	13	...	...	8,865	79	...	...	79	45	...	...	45	124
	Sibi-Khost . . . . .	10	2	8	...	...	29,660	410	...	...	410	348	2	11	361	771
<b>TOTAL</b>	29	2	27	...	...	43,125	561	...	...	561	419	2	11	432	903	
Bengal	Bankura, Raniganj . . . . .	3	...	3	...	...	6,262	34	23	...	57	41	25	1	67	124
	Burdwan " . . . . .	4	...	4	...	...	2,950	43	25	3	71	11	57	...	68	139
	Burdwan " . . . . .	193	153	49	128	256	5,293,983	18,028	10,838	170	29,036	10,643	5,562	345	16,820	45,886
	<b>TOTAL</b>	200	153	47	128	256	5,302,295	18,165	10,866	173	29,164	10,695	5,941	346	16,985	46,149

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 1918—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.								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 .	<b>A.—COAL—contd.</b>																
							Tons.										
	Hazaribagh	Bokaro-Ramgarh	12	2	10	1	1	511,422	2,402	1,962	48	4,412	1,282	1,506	24	2,812	7,221
		Giridih . . .	10	4	6	10	18	846,592	4,432	1,920	3	6,355	2,259	741	2	3,003	9,357
		Jharia . . .	5	4	1	17	18	189,212	492	291	4	787	359	264	17	640	1,427
	Manbhum	Jharia . . .	324	167	157	165	382	10,761,818	29,372	24,178	295	53,845	21,664	10,697	1,465	33,736	87,581
		Raniganj . . .	86	12	74	43	55	1,056,907	3,646	2,187	21	5,851	2,454	1,400	153	4,007	9,861
		Palamau, Daltonganj . . .	1	1	...	...	...	81,816	282	161	42	485	248	65	50	363	848
		Sambalpur, Hingir-Rampur . . .	3	2	1	1	1	51,038	331	180	...	511	142	88	...	230	741
	Sonthal Parganas.	Jainty . . .	4	2	2	3	4	137,464	303	388	...	691	428	24	65	697	1,388
Raniganj . . .		6	...	6	...	...	9,317	77	46	...	123	40	59	1	100	223	
	<b>TOTAL</b> . . .	451	104	257	240	429	13,675,616	41,337	31,313	413	73,063	28,876	14,934	1,777	45,587	118,650	
Central Provinces	Chanda, Ballarpur . . .	5	5	...	3	5	135,375	857	164	...	1,021	627	140	13	780	1,801	
	Chhindwara, Pench Valley . . .	10	7	3	8	17	267,303	1,361	580	59	2,000	447	229	64	740	2,749	
	Narsinghpur, Mohpani . . .	1	1	...	1	3	78,792	661	325	...	926	514	68	...	582	1,598	
	Yeotmal . . .	1	1	...	...	...	...	...	...	...	...	3	...	...	3	3	
	<b>TOTAL</b> . . .	17	14	3	12	25	481,470	2,819	1,069	59	3,947	1,591	437	77	2,105	6,952	



North-West Frontier Province.	Hazara . . . . .	1	...	1	...	...	240	7	...	...	7	5	...	...	5	12	
Panjab	Jhelum . . . . .	7	...	7	...	...	59,651	725	3	35	763	402	...	16	418	1,181	
	Mianwali . . . . .	2	...	2	...	...	5,152	40	...	...	40	9	...	...	9	40	
	Shahpur . . . . .	3	...	3	...	...	5,615	60	...	...	60	68	...	...	68	128	
	TOTAL . . . . .	12	...	12	...	...	50,418	825	3	35	863	479	...	16	495	1,358	
GRAND TOTAL (COAL) FOR 1918		719	367	352	389	724	19,847,039	65,433	43,447	661	109,561	42,857	21,547	2,304	66,708	176,269	
" " OF PRE- CEDING YEAR		694	352	342	506	669	17,326,384	56,782	37,703	665	95,150	38,105	18,153	2,275	58,533	153,683	
DIFFERENCE . . . . .		+25	+15	+10	-117	-145	+2,520,655	+8,651	+5,744	+16	+14,411	+4,752	+3,394	+29	+8,175	+22,586	
		B.—MICA.															
Bihar and Orissa . . . . .	Bhagalpur . . . . .	2	...	2	...	...	Cwts. 3	5	3	...	8	...	...	...	...	8	
	Gaya . . . . .	55	6	40	...	...	6,855	980	502	207	1,680	268	216	124	638	2,327	
	Hazaribagh . . . . .	425	50	375	1	1	28,836	6,079	2,578	1,200	9,866	2,601	1,651	1,311	5,563	15,429	
	Manbhum . . . . .	1	...	1	...	...	21	8	5	...	13	5	4	...	9	22	
	Monghyr . . . . .	26	12	14	...	...	8,419	1,845	223	14	2,082	378	512	430	1,350	3,432	
	Sambalpur . . . . .	1	...	1	...	...	86	45	95	6	146	...	...	...	...	146	
TOTAL . . . . .		510	68	412	1	1	41,220	8,962	3,406	1,136	13,804	3,252	2,413	1,865	7,560	21,364	
Madras . . . . .	Nellore . . . . .	84	9	75	54	56	6,108	1,640	902	108	2,650	402	324	174	900	3,550	
	Salem . . . . .	3	...	3	3	3	280	75	...	...	55	60	81	17	158	213	
	TOTAL . . . . .	87	9	78	57	59	6,388	1,695	902	108	2,705	462	405	191	1,058	3,763	

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 1918—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.								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.	
Rajputana . . . . .	<b>B.—MICA—concl'd.</b>															
	Cwts.															
	Ajmer-Merwara . . . . .	25	...	25	...	...	922	227	43	21	291	48	76	30	154	415
	Nasirabad . . . . .	1	...	1	...	...	42	10	2	2	14	4	1	1	6	20
	<b>TOTAL</b> . . . . .	<b>26</b>	<b>...</b>	<b>26</b>	<b>...</b>	<b>...</b>	<b>964</b>	<b>237</b>	<b>45</b>	<b>23</b>	<b>305</b>	<b>52</b>	<b>77</b>	<b>31</b>	<b>160</b>	<b>465</b>
	<b>GRAND TOTAL (MICA) FOR 1918</b>	<b>623</b>	<b>77</b>	<b>546</b>	<b>58</b>	<b>60</b>	<b>51,572</b>	<b>10,894</b>	<b>4,353</b>	<b>1,567</b>	<b>16,814</b>	<b>3,766</b>	<b>2,925</b>	<b>2,087</b>	<b>8,778</b>	<b>25,592</b>
	" " OF PRECEDING YEAR	637	72	565	48	49	35,896	7,835	4,172	1,164	13,171	3,451	2,344	1,563	7,358	20,529
	<b>DIFFERENCE</b> . . . . .	<b>-14</b>	<b>+5</b>	<b>-19</b>	<b>+10</b>	<b>+11</b>	<b>+15,676</b>	<b>+2,959</b>	<b>+181</b>	<b>+403</b>	<b>+3,613</b>	<b>+315</b>	<b>+581</b>	<b>+524</b>	<b>+1,420</b>	<b>+5,063</b>
Bombay . . . . .	<b>C.—MANGANESE.</b>															
	Tons.															
	Panch Mahals . . . . .	2	2	...	...	...	30,893	461	214	75	780	193	41	8	242	1,022
	Balaghat . . . . .	25	...	25	...	...	180,353	2,339	2,218	189	4,736	593	380	92	1,065	5,801
	Bhandara . . . . .	4	...	4	...	...	21,853	197	206	24	427	94	29	3	126	553
Central Provinces . . . . .	Cbhindwara . . . . .	2	2	...	...	...	72,398	760	975	36	1,771	214	86	13	343	2,114
	Nagpur . . . . .	21	1	20	...	...	167,630	1,477	1,419	15	2,911	579	481	65	1,125	4,036
	<b>TOTAL</b> . . . . .	<b>52</b>	<b>3</b>	<b>49</b>	<b>...</b>	<b>...</b>	<b>392,234</b>	<b>4,763</b>	<b>4,818</b>	<b>264</b>	<b>9,815</b>	<b>1,510</b>	<b>976</b>	<b>173</b>	<b>2,659</b>	<b>12,504</b>

Madras . . . . .	Vizagapatam . . . . .	4	...	4	...	...	2,230	166	98	7	271	30	14	2	46	317
	GRAND TOTAL (MANGANESE) FOR 1918	58	5	53	...	...	415,357	5,390	5,160	346	10,898	1,733	1,031	183	2,947	13,843
	" " OF PRECEDING YEAR	56	3	56	40	42	487,052	5,456	10	250	10,806	1,920	1,062	190	3,172	13,978
	DIFFERENCE	...	+3	-3	-40	-42	-81,695	-66	+60	+96	+90	-187	-31	-7	-225	-135
	<b>D.—LIMESTONE.</b>															
	Tons.															
Central Provinces	Bilaspur . . . . .	1	...	1	...	...	5,034	20	2	...	22	30	49	4	82	104
	Jabalpur, Katni . . . . .	24	1	23	...	...	125,417	573	919	32	1,484	170	212	20	402	1,886
	TOTAL	25	1	24	...	...	130,451	553	921	32	1,506	300	260	24	484	1,990
Panjab . . . . .	Hoshiarpur . . . . .	1	...	1	...	...	1,000	20	...	...	20	40	...	...	40	60
	GRAND TOTAL (LIMESTONE) FOR 1918	26	1	25	...	...	131,451	573	921	32	1,526	240	260	24	524	2,050
	" " OF PRECEDING YEAR	32	1	31	...	...	82,340	488	807	34	1,329	208	225	35	468	1,797
	DIFFERENCE	-6	...	-6	...	...	+49,111	+84	+114	-2	+197	+32	+35	-11	+56	+253
	<b>E.—SALT.</b>															
	Tons.															
Panjab . . . . .	Jhelum . . . . .	2	1	1	1	2	136,370	392	294	54	740	71	...	...	71	811
	Mianwali . . . . .	1	...	1	1	2	11,235	68	...	20	88	...	...	...	...	88
	Shahpur . . . . .	1	...	1	1	1	10,008	48	27	6	81	...	...	...	...	81
	GRAND TOTAL (SALT) FOR 1918	4	1	3	3	5	156,513	508	321	80	909	71	...	...	71	980
	" " OF PRECEDING YEAR	4	1	3	...	...	152,542	579	387	72	1,038	59	...	...	59	1,097
	DIFFERENCE	...	...	...	+3	+5	+5,971	-71	-66	+8	-129	+12	...	...	+112	-117

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 1918—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 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
Burma	Mogok . . . . .	1	1	1	1	1	F.—GEMS. (a) Rubies. Carats. 101,537	...	...	...	...	...	...	...	...	...
	Mogok . . . . .	3	2	1	...	...	(b) Sapphires. 34,949	778	...	...	778	522	...	...	522	1,300
	Mogok . . . . .	...	...	...	...	...	(c) Spinel. 27,529	...	...	...	...	...	...	...	...	...
	TOTAL . . . . .	3	2	1	...	...	164,115	778	...	...	778	522	...	...	522	1,300
	GRAND TOTAL (GEMS) FOR 1918 . . . . .	3	2	1	...	...	164,115	778	...	...	778	522	...	...	522	1,300
	" " OF PRECEDING YEAR . . . . .	2	2	...	...	...	198,200	739	...	...	739	506	...	...	506	1,245
DIFFERENCE . . . . .	+1	...	+1	...	...	-34,085	+39	...	...	+39	+16	...	...	+16	+55	
Bihar and Orissa	Monghyr . . . . .	4	...	4	...	...	G.—SLATE. Tons. 1,821	97	74	15	186	29	...	...	29	215
	Panjab	Gurdaspur . . . . .	1	...	1	...	6	5	...	...	5	...	...	...	...	5
	Gurgaon . . . . .	5	...	5	...	2,170	88	...	59	147	44	...	4	48	195	
	Kangra . . . . .	5	...	5	...	5,938	153	4	3	160	42	51	22	115	275	

TOTAL		11	...	11	...	...	8,114	248	4	62	312	86	51	20	163	475
GRAND TOTAL (SLATS) FOR 1918.		15	...	15	...	...	9,935	343	78	77	498	115	51	26	102	690
" " OF PRECEDING YEAR.		13	...	13	4	4	8,731	337	30	51	418	101	61	31	193	611
DIFFERENCE		+2	...	+2	-4	-4	+1,204	+6	+48	+26	+80	+14	-10	-5	-1	+79
<b>H.—GOLD.</b>																
Bihar and Orissa	Singhbhum	1	...	1	...	...	Oza. 2,085	42	11	...	53	54	72	4	130	183
Madras	Anantapur	3	3	...	...	...	17,331	488	...	...	486	386	68	62	516	1,004
GRAND TOTAL (GOLD) FOR 1918.		4	3	1	...	...	19,916	530	11	...	541	440	140	66	646	1,187
" " OF PRECEDING YEAR.		4	3	1	4	6	22,991	889	21	...	910	740	142	95	977	1,887
DIFFERENCE		...	...	...	-4	-6	-3,075	-359	-10	...	-369	-300	-2	-29	-331	-700
<b>I.—IRON ORE.</b>																
Bihar and Orissa	Singhbhum	2	1	1	...	...	Tons. 115,085	443	328	60	836	190	61	...	251	1,087
Central Provinces	Jabalpur	1	...	1	...	...	802	15	30	12	57	62	6	6	73	130
Rajputana	Ajmer-Merwara	2	..	2	...	...	3	19	...	...	19	1	1	1	3	22
GRAND TOTAL (IRON) FOR 1918.		5	1	4	...	...	115,890	482	358	72	912	523	67	7	327	1,239
" " OF PRECEDING YEAR.		3	1	2	...	...	178,303	556	432	104	1,092	350	159	5	514	1,808
DIFFERENCE		+2	...	+2	...	...	-62,413	-74	-74	-32	-180	-97	-92	+2	-187	-367

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 1918—*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 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
Bihar and Orissa	Singhbhum	1	1	...	...	...	51	40	...	...	40	32	24	...	56	96
					J.—WOLFRAM. Cwts.											
Burma	Mergui	3	...	3	...	...	3,928	83	1	...	84	261	33	24	318	402
	Tavoy	99	4	95	33	81	66,380	4,845	25	...	4,870	3,766	192	56	4,014	8,864
	Thaton	11	...	11	...	...	1,830	408	107	50	565	220	158	53	431	996
	TOTAL	113	4	109	33	81	72,138	5,336	133	50	5,519	4,247	383	133	4,763	10,282
	GRAND TOTAL (WOLFRAM) FOR 1918.	114	5	109	33	81	72,169	5,376	133	50	5,559	4,279	407	133	4,819	10,378
	" " OF PRECEDING YEAR.	147	4	143	38	97	79,312	5,096	157	49	5,302	4,600	321	153	5,074	10,376
	DIFFERENCE	-33	+1	-34	-5	-16	-7,123	+280	-24	+1	+257	-321	+86	-20	-255	+2

		K.—MAGNESITE.															
		Tons.															
Madras . . . . .	Salem . . . . .	1	...	1	1	1	5,773	105	65	131	321	26	...	6	32	353	
	TOTAL OF PRECEDING YEAR .	2	...	2	2	2	18,192	376	376	510	1,262	33	...	20	53	1,315	
	DIFFERENCE . . . . .	-1	...	-1	-1	-1	-12,419	-271	-291	-389	-941	-7	...	-14	-21	-902	
		L.—CHROMITE.															
		Cwts.															
Baluchistan . . . . .	Quetta-Pishin . . . . .	2	...	2	...	...	1,040	2	...	...	2	...	...	...	...	2	
	Zhob . . . . .	21	...	21	...	...	457,840	104	...	...	104	60	...	...	60	164	
	TOTAL . . . . .	23	...	23	...	...	458,880	106	...	...	106	60	...	...	60	166	
Bihar and Orissa . . . . .	Singhbhum . . . . .	4	...	4	...	...	21,710	97	102	10	209	33	4	1	38	247	
	GRAND TOTAL (CHROMITE) FOR 1918	27	...	27	...	...	480,590	203	102	10	315	93	4	1	98	413	
	" " OF PRECEDING YEAR.	30	...	30	4	4	345,329	300	23	40	613	75	12	3	90	703	
	DIFFERENCE . . . . .	-3	...	-3	-4	-4	+135,261	-97	-171	-30	-298	+18	-8	-2	+8	-290	

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 1918—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 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.		
<b>M.—COPPER ORE.</b>																	
Bihar and Orissa . . .	Singbhum . . . . .	1	1	—	1	2	Tons. 3,619	191	...	...	191	768	312	43	1,123	1,314	
Burma . . . . .	Lower Chhindwin . . . . .	1	...	1	...	...	...	4	...	...	4	26	...	...	26	30	
Central Provinces . . . . .	Balaghat . . . . .	1	...	1	...	...	...	3	9	...	12	...	...	...	...	12	
	<b>GRAND TOTAL (COPPER) FOR 1918.</b>	3	1	2	1	2	3,619	198	9	...	207	794	312	43	1,149	1,356	
	.. .. OF PRECEDING YEAR.	2	1	1	1	5	20,108	472	..	...	472	810	335	55	1,200	1,673	
	<b>DIFFERENCE . . . . .</b>	+1	...	+1	...	-3	-16,489	-274	+9	...	-265	-16	-23	-12	-51	-316	
<b>N.—BAUXITE.</b>																	
Central Provinces . . . . .	Jabalpur . . . . .	1	...	1	...	...	Cwts. 23,840	45	70	1	116	4	...	...	4	120	
	<b>TOTAL OF PRECEDING YEAR . . . . .</b>	1	...	1	...	...	14,300	18	16	...	34	6	4	2	12	46	
	<b>DIFFERENCE . . . . .</b>	...	...	...	...	...	+9,540	+27	+54	+1	+82	-2	-4	-2	-8	+74	



		O.—CLAY.															
							Tons.										
Bihar and Orissa	{	Mambhum . . . . .	2	...	2	...	...	27,621	172	128	20	320	106	121	...	227	547
		Palamau . . . . .	1	...	1	...	...	2,878	31	19	13	63	51	54	13	118	181
		TOTAL . . . . .	3	...	3	...	...	30,499	203	147	33	383	157	175	13	345	728
Central Provinces . . .	Jabalpur . . . . .	5	2	3	...	...	58,957	103	141	20	267	54	6	1	61	328	
Delhi . . . . .	Delhi . . . . .	1	...	1	...	...	2,536	12	...	...	12	11	...	...	11	23	
		GRAND TOTAL (CLAY) FOR 1918.	9	2	7	...	...	91,392	318	291	53	662	222	181	14	417	1,079
		" " OF PRECEDING YEAR.	10	2	8	...	...	55,396	172	190	33	395	114	66	10	190	585
		DIFFERENCE . . . . .	-1	...	-1	...	...	+35,996	+146	+101	+20	+267	+108	+115	+4	+227	+494
		P.—GALENA.															
		Cwts.															
Central Provinces . . .	{	Drug . . . . .	1	...	1	...	...	60	4	10	...	14	2	10	...	12	26
		TOTAL OF PRECEDING YEAR .	1	...	1	...	...	...	...	...	...	...	5	15	...	20	20
		DIFFERENCE . . . . .	...	...	...	...	...	...	+60	+4	+10	...	+14	-3	-5	...	-8
		Q.—TIN.															
		Cwts.															
Burma . . . . .	{	Mergui . . . . .	2	...	2	...	...	559	50	...	...	50	6	...	...	6	56
		Tavoy . . . . .	1	...	1	3	6	10,307	8	...	...	8	44	10	5	59	67
		Thaton . . . . .	1	1	...	...	...	1,157	130	10	...	140	146	14	...	160	300
		GRAND TOTAL (TIN) FOR 1918.	4	1	3	3	6	12,023	188	10	...	198	196	24	5	225	423
		" " OF PRECEDING YEAR.	9	1	8	...	...	3,640	77	8	2	87	233	8	3	244	331
		DIFFERENCE . . . . .	-5	...	-5	+3	+6	+8,383	+111	+2	-2	+111	-37	+16	+2	-19	+92

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 1918—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 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.			
<b>R.—STEATITE.</b>																		
Central Provinces . . .	Jabalpur . . . . .	3	...	3	...	...	Cwts. 80,917	61	43	2	106	21	41	7	72	173		
Madras . . . . .	Kurnool . . . . .	1	...	1	...	...	202	2	3	...	5	3	1	...	4	9		
	GRAND TOTAL (STEATITE) FOR 1918 . . . . .	4	...	4	...	...	61,119	63	46	2	111	24	45	7	76	187		
	" " OF PRECEDING YEAR.	8	...	8	1	1	34,082	90	101	...	191	45	61	21	127			
	DIFFERENCE / . . . . .	-4	...	-4	-1	-1	+27,037	-27	-55	+2	-80	-21	-16	-14	-51	-131		
<b>S.—FULLERS' EARTH.</b>																		
Central Provinces . . .	Jabalpur . . . . .	Mineral	won from a limestone mine				Tons. 218	...	...	...	...	...	...	...	...	...	...	
	TOTAL OF PRECEDING YEAR . . . . .	...	...	...	...	...	334	...	...	...	...	...	...	...	...	...		
	DIFFERENCE . . . . .	...	...	...	...	...	-116	...	...	...	...	...	...	...	...	...		

		T.—SILVER.														
		<i>Mineral won from a gold mine</i>			Ozs.											
Madras . . . . .	Anantapur . . . . .					1,169	...	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR . . . . .	...	...	...	...	1,281	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE . . . . .	...	...	...	...	-112	...	...	...	...	...	...	...	...	...	...
		U.—SAMARSKITE.														
		<i>Mineral won from a mica mine</i>			Cwts.											
Madras . . . . .	Nellore . . . . .					14	...	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR . . . . .	...	...	...	...	67	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE . . . . .	...	...	...	...	-65½	...	...	...	...	...	...	...	...	...	...
		V.—GRAPHITE.														
					Cwts.											
Rajputana . . . . .	Ajmer-Merwara . . . . .	2	...	2	...	20	8	...	...	8	2	5	3	10	18	
	TOTAL OF PRECEDING YEAR . . . . .	5	...	5	...	847	25	...	...	25	8	17	4	20	54	
	DIFFERENCE . . . . .	-3	...	-3	...	-827	-17	...	...	-17	-6	-12	-1	-19	-36	
		W.—OCHRE.														
					Tons.											
Bihar and Orissa . . . . .	Puri . . . . .	1	1	...	...	93	10	...	...	10	12	...	7	19	29	
	TOTAL OF PRECEDING YEAR . . . . .	1	...	1	...	403	8	...	...	8	8	12	...	20	28	
	DIFFERENCE . . . . .	...	+1	-1	...	-310	+2	...	...	+2	+4	-12	+7	-1	+1	
		X.—MOLYBDENITE.														
					Cwts.											
Barma . . . . .	Tavoy . . . . .	1	...	1	...	4	10	...	...	10	5	...	...	5	15	
	TOTAL OF PRECEDING YEAR . . . . .	...	...	...	...	27	...	...	...	...	...	...	...	...	...	
	DIFFERENCE . . . . .	+1	...	+1	...	-23	+10	...	...	+10	+5	...	...	+5	+15	

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 1918—concl'd.

PROVINCE.	District and mineral field.	Number of mines under the scope of the Act.	NUMBER OF MINES		NUMBER OF MINES INSPECTED DURING THE YEAR.		TOTAL OUTPUT.	AVERAGE NUMBER OF PERSONS EMPLOYED DAILY IN AND ABOUT THE MINES.								
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		BELOW GROUND.				ABOVE GROUND.				Grand total below and above ground.
								Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
					<b>Y.—BARYTES.</b>											
							Cwts.									
Madras . . . .	Kurnool . . . .	1	...	1	...	...	24,000	12	7	...	19	6	16	...	22	41
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE . . . .	+1	...	+1	...	...	+24,000	+12	+7	...	+19	+6	+16	...	+22	+41
					<b>Z.—APATITE.</b>											
							Tons.									
Bihar and Orissa . . . .	Singhbhum . . . .	1	...	1	...	...	5,100	45	30	4	79	41	25	5	71	150
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE . . . .	+1	...	+1	...	...	+5,100	+45	+30	+4	+79	+41	+25	+5	+71	+150

		AA.—POTASH.					Tons.										
Panjab . . . . .	Jhelum . . . . .	(Mineral won from a Salt mine)				135	...	...	...	...	...	...	...	...	...	...	
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	DIFFERENCE . . . . .	...	...	...	...	+135	...	...	...	...	...	...	...	...	...	...	
	GRAND TOTAL (ALL MINERALS) 1918.	1,627	467	1,160	498	879	Tons. 20,784,515 Cwts. 725,418½ Carats. 164,115 Troy ounces. 21,085	91,516	55,442	3,106	150,064	55,703	27,050	4,921	87,674	237,736	
	GRAND TOTAL OF PRECEDING YEAR.	1,663	442	1,221	655	1,086	Tons. 16,339,785 Cwts. 513,505 Carats. 198,200 Troy ounces. 24,272	80,295	49,773	2,874	133,042	51,377	22,997	4,465	78,639	211,861	
	DIFFERENCE . . . . .	-36	+25	-61	-157	-207	Tons. +2,444,730 Cwts. +211,913½ Carats. -34,085 Troy ounces. -3,187	+11,221	+5,669	+132	+17,022	+4,326	+4,053	+456	+8,835	+25,857	

APPENDIX I—contd.

Table No. 2.

Analyses of figures relating to output of coal.

PROVINCE.	District and mineral field.	OPENING STOCKS.		RAISINGS.		TOTAL.		DESPATCHES.		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 . . . . .	678	...	267,749	...	268,427	...	261,011	...	2,010	...	457	...	1,919	...	152	...
	Naga Hills . . . . .	5,738	...	21,299	...	36,037	...	29,253	...	373	...	...	...	411	...	...	...
	Sibsagar . . . . .	...	20	...	1,827	...	1,847	...	1,797	...	20	...	...	30	...	...	...
	TOTAL	6,416	20	292,049	1,827	298,484	1,847	293,264	1,797	2,413	20	457	...	2,330	30	152	...
Baluchistan	Kalat . . . . .	40	164	1,734	2,777	1,774	2,941	1,708	2,968	...	...	...	...	66	73	...	...
	Loralai . . . . .	15	...	149	...	164	...	154	...	...	..	...	...	10	...	...	...
	Quetta-Pishin . . . . .	291	871	1,785	7,080	2,076	7,951	1,334	6,197	...	...	...	...	742	1,754	...	...
	Sibi-Khost . . . . .	195	766	8,743	20,957	8,938	21,623	8,698	16,540	35	4,654	...	...	205	429	...	...
	TOTAL	541	1,801	12,411	30,714	12,952	32,515	11,894	25,605	35	4,654	...	...	1,023	2,256	...	...
Bengal	Bankura-Raniganj . . . . .	2	1,087	5,696	566	5,698	1,653	4,925	483	773	249	...	...	...	921	...	...
	Birbhum " . . . . .	...	...	2,281	609	2,281	609	2,062	91	...	566	...	...	219	12	...	...
	Burdwan " . . . . .	51,768	19,722	4,111,259	681,824	4,463,027	901,546	4,029,421	333,251	127,834	510,417	35,050	13,853	270,722	44,025	4,549	23,197
	TOTAL	51,770	10,839	4,419,236	883,059	4,471,003	903,868	4,036,108	333,825	128,607	511,232	35,050	13,853	270,941	44,958	4,549	23,197

Bihar and Orissa	Hazaribagh	Bokaro Ramgarh	4,182	5,633	420,472	120,950	424,654	126,583	399,693	101,514	1,275	6,089	...	7,610	23,686	11,370	5	5,064
		Giridih	4,296	5,110	635,039	211,553	639,335	216,608	624,598	99,553	1,215	54,946	...	58,626	13,522	3,538	45,173	...
		Jharia	8,819	1,372	160,981	28,231	169,500	29,603	124,830	15,938	9,420	9,767	...	350	37,550	3,548	106	...
	Mandhum	Jharia	231,805	104,485	9,128,639	1,633,209	9,360,444	1,737,694	7,859,774	660,216	304,024	700,333	218,679	201,670	977,967	155,475	131,885	104,684
		Raniganj	43,196	9,640	844,754	212,153	887,950	221,793	512,480	93,116	45,943	81,766	169,984	10,334	168,543	36,577	4,123	107,324
	Palamau-Daltonganj	1,237	518	62,568	19,248	63,505	19,766	63,021	12,477	...	6,333	...	...	784	951	...	...	
	Sambalpur-Hingir Rampur	...	1	36,692	14,346	36,692	14,347	34,681	2,032	2,011	12,266	...	...	...	29	...	...	
	Santal Par- ganis	Jainty	1,212	193	127,401	10,063	128,613	10,256	106,409	3,748	9,174	5,742	...	...	19,030	766	...	...
		Raniganj	294	234	8,026	1,291	8,320	1,525	6,241	550	534	495	...	...	1,545	490	...	...
			<b>TOTAL</b>	<b>285,041</b>	<b>127,186</b>	<b>11,424,572</b>	<b>2,251,044</b>	<b>11,719,613</b>	<b>2,378,230</b>	<b>9,725,727</b>	<b>1,009,164</b>	<b>373,596</b>	<b>877,737</b>	<b>379,663</b>	<b>278,590</b>	<b>1,240,627</b>	<b>212,739</b>	<b>181,292</b>
Central Provinces	Chanda	Chanda	295	961	103,437	31,938	103,732	32,899	101,900	17,928	1,011	13,350	...	...	821	1,621	...	...
		Chhindwara	339	776	216,675	50,328	217,314	51,104	214,518	33,942	1,927	15,981	...	...	969	1,181	...	...
		Narsinghpur	2,714	2,172	53,960	24,832	56,674	27,004	47,798	17,235	8,565	8,211	...	...	311	1,558	...	...
		<b>TOTAL</b>	<b>3,348</b>	<b>3,909</b>	<b>374,372</b>	<b>107,098</b>	<b>377,720</b>	<b>111,007</b>	<b>364,216</b>	<b>69,105</b>	<b>11,403</b>	<b>37,542</b>	<b>...</b>	<b>...</b>	<b>2,101</b>	<b>4,360</b>	<b>...</b>	<b>...</b>
North-West Frontier Province.	Hazara	...	...	...	240	...	240	...	240	...	...	...	...	...	...	...	...	
Panjab	Jhelum	Jhelum	...	4,304	3,738	35,913	3,738	40,217	3,438	36,157	300	1,051	...	...	...	3,009	...	...
		Mianwali	...	150	321	4,831	321	4,981	321	4,743	...	...	...	...	...	298	...	...
		Shahpur	...	579	404	5,211	404	5,790	404	4,496	...	174	...	...	...	1,120	...	...
		<b>TOTAL</b>	<b>...</b>	<b>5,033</b>	<b>4,463</b>	<b>45,955</b>	<b>4,463</b>	<b>50,998</b>	<b>4,163</b>	<b>45,396</b>	<b>300</b>	<b>1,225</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>4,367</b>	<b>...</b>	<b>...</b>
	<b>GRAND TOTAL 1918</b>	<b>3,7,116</b>	<b>158,758</b>	<b>16,527,102</b>	<b>3,319,937</b>	<b>16,884,218</b>	<b>3,478,695</b>	<b>14,435,672</b>	<b>1,485,132</b>	<b>516,354</b>	<b>1,432,410</b>	<b>415,170</b>	<b>292,443</b>	<b>1,517,022</b>	<b>268,710</b>	<b>185,983</b>	<b>210,269</b>	

## APPENDIX I—contd.

Table No. 3.  
Number of mines opened and closed during the year ending 31st  
December 1918.

Province.	District.	Number of mines opened.	Number of mines closed.	
<b>A.—COAL.</b>				
ASSAM . . . . .	Lakhimpur . . . . .	1	...	
BALUCHISTAN . . . . .	Sibi-Khoat . . . . .	3	...	
BENGAL . . . . .	Birbhum . . . . .	3	2	
	Burdwan-Raniganj . . . . .	9	...	
TOTAL .		12	2	
BIHAR AND ORISSA . . . . .	Hazaribagh {	Bokaro-Ramgarh .	1	5
		Giridih . . . . .	...	2
	Manbhum {	Jharia . . . . .	11	7
		Raniganj . . . . .	...	1
	Sambalpur, Hingir Rampur . . . . .	2	...	
	Sonthal Parganas, Raniganj . . . . .	1	1	
TOTAL .		15	16	
CENTRAL PROVINCES . . . . .	Chanda . . . . .	2	...	
	Chhindwara . . . . .	3	...	
TOTAL .		5	...	
PANJAB . . . . .	Shabpur . . . . .	1	...	
TOTAL (COAL) .		37	18	
<b>B.—MICA.</b>				
BIHAR AND ORISSA . . . . .	Bhaghalpur . . . . .	...	2	
	Gaya . . . . .	15	5	
	Hazaribagh . . . . .	129	56	
	Manbhum . . . . .	1	...	
	Monghyr . . . . .	8	4	
	Sambalpur . . . . .	1	...	
TOTAL .		154	67	



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

Number of mines opened and closed during the year ending 31st  
December 1918—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
<b>B—MICA—<i>concl'd.</i></b>			
MADRAS . . . . .	Nellore . . . . .	23	15
RAJPUTANA . . . . .	Ajmer-Merwara . . . . .	5	14
TOTAL (MICA) .		182	96
<b>C.—MANGANESE.</b>			
CENTRAL PROVINCES . . . . .	Balaghat . . . . .	...	1
	Nagpur . . . . .	2	3
TOTAL .		2	4
MADRAS . . . . .	Vizagapatam . . . . .	1	...
TOTAL (MANGANESE) .		3	4
<b>D.—LIMESTONE.</b>			
CENTRAL PROVINCES . . . . .	Bilaspur . . . . .	1	...
	Jabalpur . . . . .	6	5
TOTAL (LIMESTONE) .		7	5
<b>E.—IRON ORE.</b>			
CENTRAL PROVINCES . . . . .	Jabalpur . . . . .	1	...
RAJPUTANA . . . . .	Ajmer-Merwara . . . . .	1	1
TOTAL (IRON) .		2	1
<b>F.—WOLFRAM.</b>			
BIHAR AND ORISSA . . . . .	Singhbhum . . . . .	1	...
BURMA . . . . .	Tavoy . . . . .	17	6
	Thaton . . . . .	2	1
TOTAL .		19	7
TOTAL (WOLFRAM) .		20	7

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

Number of mines opened and closed during the year ending 31st  
December 1918—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
<b>G.—BAUXITE.</b>			
CENTRAL PROVINCES . . . . .	Jabalpur . . . . .	1	1
<b>H.—COPPER.</b>			
BURMA . . . . .	Lower Chhindwin . . . . .	...	1
CENTRAL PROVINCES . . . . .	Balaghat . . . . .	1	1
	<b>TOTAL (COPPER)</b> .	1	2
<b>I.—CLAY.</b>			
BIHAR AND ORISSA . . . . .	Manbhurn . . . . .	...	1
CENTRAL PROVINCES . . . . .	Jabalpur . . . . .	...	1
DELHI . . . . .	Delhi . . . . .	1	1
	<b>TOTAL (CLAY)</b> .	1	3
<b>J.—GALENA.</b>			
CENTRAL PROVINCES . . . . .	Drug . . . . .	1	1
<b>K.—TIN.</b>			
BURMA . . . . .	Tavoy . . . . .	1	...
<b>L.—GOLD.</b>			
MADRAS . . . . .	Anantapur . . . . .	...	1
<b>M.—SLATE.</b>			
BIHAR AND ORISSA . . . . .	Monghyr . . . . .	1	...
PANJAB . . . . .	Surgaoon . . . . .	1	...
	<b>TOTAL (SLATE)</b> .	2	...

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

Number of mines opened and closed during the year ending 31st  
December 1918—*concl'd.*

Province.	District.	Number of mines opened.	Number of mines closed.
<b>N.—GRAPHITE.</b>			
RAJPUTANA . . . . .	Ajmer-Merwara . . . . .	...	2
<b>O.—APATITE.</b>			
BIHAR AND ORISSA . . . . .	Singhbhum . . . . .	1	...
<b>P.—BARYTES.</b>			
MADRAS . . . . .	Kurnool . . . . .	1	...
GRAND TOTAL (ALL MINES) .		260	141

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, iron ore, magnesite, chromite, tin, steatite, clay, galena, bauxite, fuller's earth, silver, graphite, molybdenite, ochre, potash, samarskite, apatite and barytes.

Year.	Coal.	Manganese.	Mica.	Limestone.	Salt.	Wolfram.	Gold.	Copper ore.
	Tons.	Tons.	Cwts.	Tons.	Tons.	Cwts.	Troy ozs.	Tons.
1909 . . . . .	11,204,227	357,205	32,011	56,502	126,987	114	5,615	7
1910 . . . . .	11,387,716	468,669	21,375	81,258	119,867	18	3,266	864
1911 . . . . .	12,048,726	441,426	31,686	92,692	124,603	8,394	8,277	2,079
1912 . . . . .	14,041,368	423,464	41,660	91,784	131,233	25,401	7,269	8,984
1913 . . . . .	15,486,318	637,391	43,650	71,259	138,510	27,520	11,019	3,639
1914 . . . . .	15,727,631	555,672	38,189	146,505	135,518	31,526	19,873	4,400
1915 . . . . .	16,352,480	378,172	24,063	64,179	141,770	39,432	24,320	8,010
1916 . . . . .	16,419,082	568,032	35,978	45,290	160,357	59,094	23,235	2,671
1917 . . . . .	17,326,384	497,052	35,896	82,340	162,542	79,312	22,991	20,108
1918 . . . . .	19,847,039	415,357	51,572	131,451	158,513	72,189	19,916	3,619

APPENDIX I—*concl'd.*

Table No. 5.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rate during the years 1909 to 1918 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-RATE.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above ground.
1909 . . .	11,294,227	109,291	119	10.53	1.08
1910 . . .	11,387,716	105,285	160	14.05	1.52
1911 . . .	12,048,726	106,598	148	12.28	1.38
1912 . . .	14,044,368	121,392	157	11.17	1.29
1913 . . .	15,486,318	133,042	185	11.95	1.39
1914 . . .	15,727,631	137,851	145	9.22	1.05
1915 . . .	16,352,480	145,537	166	10.15	1.14
1916 . . .	16,419,082	143,459	169	10.29	1.18
1917 . . .	17,326,384	153,683	163	9.41	1.06
1918 . . .	19,847,039	176,269	197	9.93	1.12

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

**Table No. I.**

List of Fatal Accidents in mines regulated by the Indian Mines Act, 1901, during the year 1918.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>EXPLOSIONS OF FIRE DAMP—(12 deaths).</b>						
1	2nd January, 8 A.M.	Kuardi Mine, Charanpur P. O., Bengal.	Kuardi Coal Co.	Moti Meah, (m.), 30, <i>Miner.</i>	Coal	Deceased, whilst working at the face of a narrow gallery with a naked light, ignited an accumulation of gas. He received burns about the face, shoulders and lower arms, and died 11 days later. Inspection and inquiry made.
2	6th September, 3-30 P.M.	Bajdih Mine, Sitarampur P. O., Bengal.	Equitable Coal Co., Ltd.	Murathia Barhi, (m.), 25, <i>Main gallery driver.</i>	Coal	Some miners, carrying open lights, were sent to work in a district where safety lamps were in use. A small accumulation of fire damp, in the gallery in which deceased was at work, became ignited by one of the open lamps. Deceased was badly burnt about the upper part of the body and died five days later. Inspection and inquiry made.
3	18th November, about 9 A.M.	Dishergarh Mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ltd.	Ram Charan Lohar, (m.), 32, <i>Timber Mistry;</i> Karim Meah, (m.), 42, <i>Rail Mistry;</i> Ramjash Jeswar, (m.), 48, <i>Fencing coolie;</i> Broja Roy, (m.), 21, <i>Timber coolie;</i> Gosta Bauri, (m.), 24, <i>Rail coolie.</i> Khedoo Teli, (m.), 26, <i>Timber Mistry;</i> Fakir Bauri, (m.), 40, <i>Brattice Sirdar;</i> Abdul Khalil, (m.), 21, <i>Rail coolie;</i> Abdul Mistry, (m.), 32, <i>Rail Mistry;</i> Uzir Meah, (m.), 43, <i>Timber coolie.</i>	Coal	Fourteen persons were engaged in building two stoppings in a disused gallery lying to the rise of an old goaf. Some of them climbed into the goaf to get stones for the building of the stoppings and fire damp in the goaf was ignited at the naked light of one of them. An explosion occurred by which all the persons were burnt, and 10 succumbed to their injuries. Inspection and inquiry made. ( <i>See Report, page 7.</i> )

APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—(126 deaths).</b>						
<b>(a) Falls of roof—(70 deaths).</b>						
4	25th January, 6-30 A.M.	Kendwadih mine, Jamadoba P. O., Bihar and Orissa.	Hariledih Coal Co., Ld.	Ram Bhaju Barhi, (m.), 18, <i>Timberman.</i>	Coal	Deceased was an experienced timberman. He stopped the coal-cutters from working at a pillar in a pillar extraction district, and began to set props on the edge of the goaf. He kept one coal-cutter to assist him. Whilst they were measuring the length of props required, a fall of roof occurred in the goaf. They were both struck by the edge of the falling stone. Deceased was killed and the coal-cutter sustained a serious spinal injury. Inspection and inquiry made.
5	30th January, 1-30 P.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Raghu Chamar, (m.), 25, <i>Coal-cutter.</i>	Coal	Whilst deceased was cutting roof coal in a gallery, 10 feet wide by 7 to 10 feet high, a nodule of stone, weighing about 80 lbs., fell upon him from a height of 6 feet. He was struck over the heart, and died shortly after. The stone fell from an irregular band in the coal seam. Inspection and inquiry made.
6	3rd February, 1 A.M.	Benahit mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Jamni Kohlin, (f.), 10, <i>Coal-carrier.</i>	Coal	Whilst deceased was sitting down in a gallery, roof stone, 6' x 3' x 0"–12", fell from a 'slip.' She sustained injuries to which she succumbed within a few hours. Inspection and inquiry made.
7	1st February, 6-30 P.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Nowagarh Coal Co., Ld.	Bhikari Dosadh, (m.), 50, <i>Propping coolie.</i>	Coal	Stone cogs were being built in a pillaring area. Deceased and two other coolies were engaged in carrying stones for the building from the edge of the goaf. A heavy fall took place in the goaf, and some of the falling stones struck deceased, causing injuries which terminated fatally within a few hours. Inspection and inquiry made. (See Report page 8.)
8	6th February, 2 A.M.	Hatgaroic mine, Sitarampur P. O., Bengal.	Lutchipur Coal Co., Ld.	Nowaj Gope, (m.), 32, <i>Coal-cutter.</i>	Coal	Deceased, accompanied by his coal-carrier, left his working place, broke down a fence, and was robbing coal from the corner of a pillar, when a mass of overhanging roof stone, measuring 6' 0" x 5' 0" x 1' 0", fell upon him and his companion from a height of 4' 8". He sustained a fractured spine and died one and-a-half hours later. His coal-carrier sustained a simple fracture of the right thigh. Inspection and inquiry made.
9	20th February, 3 P.M.	Joktiabad mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Bhim Gope, (m.), 40, <i>Stone-cutter.</i>	Coal	Deceased, with several other men, was working at a 'fall' of 'dropped' coal when the main roof in the inside goaf fell without any warning. A piece of stone, measuring 3' 0" x 3' 0" x 6' 9", fell within the 'opening' from a height of 18' 0" and struck deceased, killing him instantly. Inspection and inquiry made.
10	13th February, 10 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Tek Bahadur Rana (Nepali), (m.), 38, <i>Coal-shoveller.</i>	Coal	Whilst deceased was at work in an 'opening,' 36' x 30' x 12' high, about a ton of coal fell from the roof without warning. He was killed on the spot. Inspection and inquiry made.

11	28th February, 11-30 A.M.	Alkusa mine, Kusunda P. O., Bihar and Orissa.	Kanga & Co.	Chaman Rai Rajwar, (m.), 30, <i>Coal-cutter.</i>	Coal	Deceased, with three other coal-cutters, was employed in cutting roof coal, 3' thick, in a gallery adjoining an open quarry. He under-cut the side and caused a block of coal, 3' 0" x 3' 0" x 2' 6", which came away from a 'slip,' to fall upon him from a height of 10 feet. He sustained injuries which terminated fatally an hour later. Inspection and inquiry made.
12	20th February, 10 P.M.	Jainty Central mine, Karmatar P. O., Bihar and Orissa.	Jainty Central Colliery, Ld.	Ugan Chamar, (m.), 35 ; Bana Meah, (m.), 34, <i>Coal-cutters.</i>	Coal	The deceased, and two other persons who were injured, broke down a fence and entered a gallery in which the roof was unsafe and were cutting loose side coal, when a mass of shaly roof, measuring 10' 0" x 7' 0" x 1' 6", fell suddenly upon them, from a height of 6' 0". The deceased sustained serious internal injuries. One died four hours and the other four days later. The injured persons sustained serious abrasions on the head and body. Inspection and inquiry made.
13	28th February, 1-30 P.M.	Radhaballabpur mine, Samdi P. O., Bengal.	J. Boisogomoff & Co.	Sam Manjhi, (m.), 25, <i>Coal-cutter.</i>	Coal	Deceased, a coal-cutter, went with a miner through a fence into some disused workings, to rob coal from the corner of a pillar. A mass of roof coal, measuring 6' 0" x 3' 0" x 1' 0", fell from a height of 8' 0" and struck deceased. He sustained serious injuries and died in his village several days later. Inspection and inquiry made.
14	2nd March, 4-30 P.M.	Babisol mine, Raniganj P. O., Bengal.	Bilbera Coal Co., Ld.	Sham Manjhi, (m.), 35, <i>Coal-cutter.</i>	Coal	Deceased, hearing the roof "weighting" near his working place, lost his head and ran into danger. A mass of roof coal, measuring 10' 0" x 5' 0" x 3' 0", fell suddenly from a height of 7' 6". He was buried under the fall and killed instantly. Inspection and inquiry made.
16	16th March, 9-30 A.M.	Cradock mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ld.	Kulu Gond, (m.), 18, <i>Timbering coolie.</i>	Coal	Timber was being extracted in a goaf, and, as the last prop was withdrawn, deceased bent down to pick up a wedge. While doing so a mass of stone, measuring 4' 0" x 3' 0" x 1' 0", fell from a height of 4 feet upon him. He received injuries which resulted in his death an hour later. Inspection and inquiry made.
16	21st March, noon.	Central Dharmaband mine, Katrasgarh P. O., Bihar and Orissa.	Central Dharmaband Coal Co., Ld.	Bhika Manjhi, (m.), 40, <i>Miners' Sirdar.</i>	Coal	Deceased broke down a fence and entered old workings, where he began to rob coal from the side of a pillar. Whilst so engaged, a mass of roof stone, measuring 9' 0" x 9' 0" x 0' 5" thick, fell upon him. He was killed on the spot. Inspection and inquiry made.
17	4th April, 12-15 P.M.	Tikak (Lower) mine, Margherita P. O., Assam.	Assam Railways and Trad- ing Co., Ld.	Lalbir Kama (Nepali), (m.), 28, <i>Tub-filler.</i>	Coal	Whilst deceased was loading coal in an "opening," 40' x 16' x 5' to 16' high, he was killed by a mass of 30 cwts. of coal, which fell from the roof 12 feet above, without warning. Inspection and inquiry made.
18	18th April, 4 P.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Panchkouri Ruhidas, (m.), 20, <i>Miner.</i>	Coal	Deceased, against orders, entered a gallery to load some coal which had been blasted down. Whilst so employed, a piece of roof coal, measuring 1' 9" x 0' 10" x 0' 4", fell upon him from a height of 12 feet. He sustained a compound fracture of the leg and died on the following day. Inspection and inquiry made.
19	15th April, 2 A.M.	Banksimula mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ld.	Bhatu Bhooria, (m.), 35, <i>Propping coolie.</i>	Coal	Deceased, whilst assisting the sirdar and propping carpenter to withdraw props in a goaf, was in the act of loosening the ground at the foot of a prop, when a piece of coal, measuring 2' 6" x 1' 6" x 1' 6", fell from the roof at a height of 12 feet, struck another prop and rebounded on to deceased, causing serious injuries from which he died 25 minutes later. Inspection and inquiry made.
20	19th April, 9 A.M.	North Mudidih mine, Sijua P.O., Bihar and Orissa.	Reliance Coal Co., Ld.	Dinnu Kole, (m.), 40, <i>Miner.</i>	Coal	Deceased went behind a fence into a goafed area to rob coal, and was killed by a large fall of roof, which took place suddenly in the goaf. Inspection and inquiry made.

APPENDIX II—contd.

Fatal accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<i>(a) Falls of roof—contd.</i>						
21	25th April, 4-30 P.M.	Ekra mine, Bansjora P. O., Bihar and Orissa.	Maharaja M. C. Nandi	Somi Bauria, (f.), 25; Jugal Bauri, (m), 18, <i>Coal-carriers.</i>	Coal.	The deceased were walking along a travelling road, when a mass of coal measuring 14' 0" x 14' 0" x 1' 6", fell from a height of 5' 6" upon them. The woman was killed outright and the man succumbed to his injuries two days later. Inspection and inquiry made.
22	10th April, 10-30 A.M.	Dobalia mine, Kalipahari P. O., Bengal.	Dobalia Coal Co.	Boku Kora, (m.), 45, <i>Minor.</i>	Coal.	Deceased crossed a fence to rob coal in a goafed area. Whilst so doing, a mass of roof stone fell through a distance of 6 feet upon his leg and fractured it. He died 13 hours later. Inspection and inquiry made.
23	18th April, 10 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Golla Passi, (m.), 24, <i>Contractor's Sirdar.</i>  Sankar Kairi, (m.), 35, <i>Tub-pusher.</i>	Coal.	The two deceased were standing near a tub, which was being loaded on a road, 8' 0" wide and 5' 0" high, when a slab of coal 1' 0" thick and weighing about half a ton, fell from the roof. Golla Passi sustained an injury to the head and died in hospital two days later. Sankar Kairi was seriously injured and died in hospital three days later. Inspection and inquiry made.
24	6th May, 1 P.M.	Hatnol mine, Barakar P. O., Bengal.	M. L. Laik & Bros.	Bipin Mahato, (m.), 38, <i>Coal-cutter</i> ; Ghanasham Chamar, (m.), 35, <i>Carpenter's coolie</i> ;	Coal.	Timbers were being set under the roof coal in a goafing district, prior to extracting two small pillars of coal. The deceased coal-cutter, in spite of being warned not to do so, commenced to cut coal before all the necessary props had been set. One of the 'atooks' collapsed and a mass of roof coal, measuring 16' 0" x 18' 0" x 2' 6", fell from a height of 8' 0" on to him and on to the other deceased, killing them instantly. Inspection and inquiry made.
25	27th April, 9-30 A.M.	Chasnalla mine, Jharua P. O., Bihar and Orissa.	Lodna Colliery Co., Ltd.	Goman Meah, (m.), 35, <i>Miner.</i>	Coal.	Deceased and a companion were dressing the sides and roof of a gallery, in which there was a pronounced "slip" in the roof. Deceased had sat down to smoke under the place where his companion had been working in the roof, when a mass of roof coal, weighing about 6 cwts., fell from a height of 6 feet upon him. He sustained a fracture of the spine, and died 10 days later. Inspection and inquiry made.
26	15th May, 5 P.M.	Sudrendih mine, Nowagarh P. O., Bihar and Orissa.	Jainarayan Ramjash Agarwalla.	Nema Roy, (m.), 33, <i>Miner.</i>	Coal.	Deceased and another man, who was injured, were working in a gallery, when a mass of stone suddenly fell from between two converging 'slips' in the roof. The mass weighed about a ton and fell from a height of 7 feet. Inspection and inquiry made.
27	23rd May, 6 A.M.	Alkusa South mine, Kusunda P. C., Bihar and Orissa.	Raniganj Coal Association, Ltd.	Jhaksi, (f.), 17, <i>Coal-carrier.</i>	Coal.	Whilst deceased was walking through a gallery, a mass of coal, measuring 5' 0" x 2' 0" and tapering to a point, fell upon her from a height of 14 feet. She was killed instantly. Inspection and inquiry made.



28	20th May, 5 A.M.	Jamuria mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Churu Manjhi, (m.), 40, <i>Coal-cutter.</i>	Coal .	Deceased went inside a fence, on the edge of a goaf, to cut coal from the corner of a pillar. A mass of overhanging roof coal fell upon him from a height of 8 feet, killing him instantly. Inspection and inquiry made.
29	6th June, 3-30 P.M.	Bhuggudih mine, Jharia P. O., Bihar and Orissa.	Bengal-Nagpur Coal Co., Ld.	Khudi Mallik, (f.), 25, <i>Coal-carrier.</i>	Coal .	Deceased was seriously injured by a fall of roof coal, measuring 2' 0" x 12' 0" to 6' 0" x 3' 0" thick, which occurred near a pillar which was being extracted. She died from shock the same day. Inspection and inquiry made.
30	21st June, 8-30 A.M.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Ramabatar Mudi, (m.), 30, <i>Hookman.</i>	Coal .	Whilst deceased and two companions were at work at the junction of four roads in a haulage incline, a mass of roof stone, measuring 15' 0" x 14' 0" x 1' 9" to 0' 3", fell upon them from a height of 7' 6". Deceased was killed instantly, whilst his two companions were injured. Inspection and inquiry made.
31	28th June, 11 A.M.	Rampur mine, Asansol P. O., Bengal.	A. N. Sircar & Co. . .	Prasanna Bauri, (m.), 30, <i>Miner.</i>	Coal .	Deceased passed over a fence to rob some fallen coal lying in a goaf. Whilst so engaged, a mass of roof coal, weighing about 6 tons, fell from a height of 18 feet upon him. He was killed instantly. Inspection and inquiry made.
32	26th June, 3 A.M.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gorey Mager, (m.), 36, <i>Tub-filler.</i>	Coal .	Deceased was filling baskets at the entrance of an opening, which was 20 feet high. About 3 cwts. of coal dirt fell on to him without warning, causing injuries from which he died while being taken to hospital.
33	9th July, 6-30 A.M.	Chanch mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Kedar Bauri, (m.), 28, <i>Coal-cutter.</i>	Coal .	Deceased was in the act of robbing the corner of a pillar on the side of a tram line, when a mass of stone, measuring 4' 0" x 2' 6" x 0' 7", fell from a height of 8 feet on to him, fracturing his spine and killing him instantly. Inspection and inquiry made.
34	10th July, 9 P.M.	Craddock mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ld.	Dulli Ahir, (m.), 25, <i>Coal-cutter.</i>	Coal .	Deceased crossed a fence to collect loose coal in goaf. He had been warned not to do so. He was caught by a slab of stone, which fell from the roof, and died two days afterwards from the injuries he received. Inspection and inquiry made.
35	16th July, 5-3 A.M.	Huntodi mine, Mohuda P. O., Bihar and Orissa.	Huntodih Coal Co., Ld.	Muktear Meah, (m.), 24, <i>Fitter's labourer.</i>	Coal .	Whilst deceased, with a pump-attendant, was on duty at an underground pump, a mass of roof coal, 29' 0" x 10' 0" x 0' 7" thick, fell from a height of 10 feet. Deceased was killed on the spot. The other man was only slightly injured. Inspection and inquiry made.
36	21st July, 5-30 A.M.	Nursumuda mine, Asansol P. O., Bengal.	Sitarampur Coal Co., Ld.	Matak Manjhi, (m.), 25, <i>Coal-cutter.</i>	Coal .	Deceased was robbing a pillar in a fenced area when a large mass of stone, measuring 14' 0" x 2' 0" x 1' 0", fell on to him from a hidden 'slip' in the roof through a distance of 3' 9". He was killed instantly. Inspection and inquiry made.
37	19th July, 1 P.M.	Asansol mine, Asansol P. O., Bengal.	Ghoseick Muslia Collieries, Ld.	Chunika Manjhi, (m.), 21, <i>Coal-cutter.</i>	Coal .	Deceased was robbing the corner of pillar in a main road when a large piece of stone, measuring 7' 6" x 2' 0" x 1' 6", fell from a height of 3' 9" on to him. He was killed instantly. Inspection and inquiry made.
38	26th July, 0-30 A.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Nowagarh Coal Co., Ld.	Doyal Jeswari, (m.), 26, <i>Coal-cutter.</i>	Coal .	Whilst deceased was engaged in robbing coal from the side of a tramping level, a slab of roof stone, 14' 0" x 0' 6" to 0' 30" wide x 0' 2" thick, fell on to him. He sustained injuries to which he succumbed four days later. Inspection and inquiry made.
39	31st July, 2 P.M.	Jainty Central mine, Kamatar P. O., Bihar and Orissa.	Jainty Central Coal Co., Ld.	Mahabir Kole, (m.), 28, <i>Miner.</i>	Coal .	Deceased was dressing the side of a gallery. While so doing a mass of stone, measuring 5' 0" x 5' 0" x 0' 6", fell from a hidden 'slip' through a height of 6' 6" on to him. He was killed instantly. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<i>(a) Falls of roof—contd.</i>						
40	27th August, 9-30 A.M.	Churulia mine, Panuria P. O., Bengal.	Churulia Coal Co., Ld.	Ajudhya Sutradhar, (m.), 30, Carpenter; Mahesh Bauri, (m.), 36, Main heading driver.	Coal	The deceased, although they had been previously warned, passed under some roof which was being dressed. Whilst so doing a mass of stone, measuring 4' 0" x 2' 6" x 0' 5", fell on to them from a height of 7' 6". They died 10 and 15 days later, respectively. Inspection and inquiry made.
41	1st September, 7 A.M.	Ramnagar mine, Kulti P. O., Bengal.	Bengal Iron and Steel Co., Ld.	Dhena Manjhi, (m.), 24, Miner.	Coal	Whilst deceased and 5 companions were extracting a pillar, a 'weight' came on. In attempting to get to the surface through an old subsidence, a piece of stone, measuring 6' 0" x 4' 0" x 3' 0", fell on to him from the roof through a distance of about 10 feet. He was killed instantly. Inspection and inquiry made.
42	11th September, 2-30 P.M.	Benali mine, Raneeganj P. O., Bengal.	Phularitand Coal Co., Ld.	Ishor Hari, (m.), 30, Coolie.	Coal	Whilst deceased was clearing a fall of roof, another fall occurred. He was struck by a piece of stone, weighing about 480 lbs. which fell from a height of 12 feet. He was killed instantly. Inspection and inquiry made.
43	29th August, 7-15 A.M.	Kalimati mine, Kalimati P. O., Bihar and Orissa.	Indian Mineral Syndicate	Batcha, (m.), 29, Timber-coolie.	Wolfram	Deceased and three other coolies, while changing timbers in an inclined shaft, were caught by a sudden fall of clay from the hanging wall. Deceased succumbed to a fractured skull, the three other coolies being injured.
44	9th September, 12-30 P.M.	Kalithan Suratand mine, Jharia P. O., Bihar and Orissa.	K. B. Seal	Chandmoni Majhian, (f.), 30, Coal-carrier.	Coal	While coal-cutters were engaged in extracting a pillar of coal, a slab of shale, 28' 0" x 8' 0" x 0' 9" thick, fell from the roof, 10 feet above, dislodging five props. Deceased was buried under the slab and was killed on the spot. Inspection and inquiry made.
45	12th September, 7 A.M.	Babisole mine, Ondal P. O., Bengal.	Bilbera Coal Co., Ld.	Bondhu Muchi, (m.), 18, Coal-carrier.	Coal	Deceased, in spite of being warned not to do so, walked under some shaly roof stone which was being dressed down. A piece, measuring about 1' 8" x 1' 8" x 0' 6", fell on to him from a height of 9 feet. He sustained a fracture of the right thigh and left collar bone and died three days later. Inspection and inquiry made.
46	17th September, 10-45 A.M.	New Kessurgarah mine, Kattasgarh P. O., Bihar and Orissa.	New Kessurgarah Coal Co., Ld.	Mukti Kunharin, (f.), 18; Chotua Musalmani, (f.), 14, Coal-carriers.	Coal	The deceased were employed in carrying coal in a pillar extraction district. Whilst they were resting, a mass of roof coal, 20' 0" x 20' 0" x 3' 0" thick, fell on to them from a height of 10 feet. They were killed instantly. Inspection and inquiry made.
47	10th September, 9 P.M.	Damodarapur mine, Nandi P. O., Bengal.	Bengal Coal Co., Ld.	Ram Prosad Singh, (m.), 36, Sirdar.	Coal	Whilst deceased was sounding some weak roof, a piece of shale, measuring 3' 0" x 2' 0" x 0' 2½", fell through a distance of 3 feet on to him. He sustained injuries to the spinal cord and died shortly afterwards. Inspection and inquiry made.

48	20th September, 1-30 P.M.	Mudidih (North) mine, Sijua P. O., Bihar and Orissa.	Reliance Coal Co., Ld.	Nobin Teli, (m.), 22, <i>Coal-cutter.</i>	Coal	Whilst deceased was engaged in cutting side coal on a haulage road 6 feet in height, a mass of stone, 21' 0" x 1' 6" to 7' 6" x 2' 0" thick, fell from between "slips" in the roof. He sustained injuries to which he succumbed five days later. Inspection and inquiry made.
49	27th September, 3-30 P.M.	Sripore mine, Kalijahari P. O., Bengal.	Lodna Colliery Co., Ld.	Atu Kusi, (m.), 45, <i>Shotfirer.</i>	Coal	Deceased was a shotfirer. He had fired 3 shots in the base of a "stook" of coal, and had returned to prepare five others. Whilst so doing, the roof came on 'weight' and fell on to him. He was killed instantly. Inspection and inquiry made.
50	1st October, 6 P.M.	Nandi mine, Nandi P. O., Bengal.	Adjai Coal Co., Ld.	Sahab Mahato, (m.), 30, <i>Propping carpenter.</i>	Coal	Deceased with others was engaged in drawing the timbers surrounding a "stook" of coal about 6 feet square. Eighteen props had been withdrawn, when the sound of the roof "weighting" was heard in the goaf. All made a dash for safety, but deceased was completely buried under a mass of roof which fell. Another man sustained a few minor injuries. Inspection and inquiry made.
51	11th October, 3 P.M.	Lutchipur mine, Sitarampur P. O., Bengal.	Lutchipur Coal Co., Ld.	Lakhi Bhumij, (f.), 32, <i>Coal-carrier.</i>	Coal	Deceased was filling a basket of coal, when a mass of roof coal, weighing about a ton, fell from a height of 14 feet. A piece of the coal rolled over and struck her in the back, causing severe internal injuries from which she died four hours later. Inspection and inquiry made.
52	7th October, 11-30 A.M.	Hpaungdaw mine, Tavoy P. O., Burma.	London and Burmese Wolfram Co., Ld.	Jit Singh, (m.), 25, <i>Timberman.</i>	Wolfram	Deceased was setting timber in a drive and was killed by a fall of soft earth from the roof.
53	25th October, 11 A.M.	Kustore (North) mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Charan Mahato, (m.), 18, <i>Coal-carrier.</i>	Coal	Deceased was loading some roof coal, which had been got down, when a piece of coal, measuring 5' 0" x 4' 0" x 0' 10", fell from a height of 10 feet, without any warning. A piece of the coal struck deceased on the back and fractured his spine. He died one hour later. Inspection and inquiry made.
54	28th October, 2-30 P.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Luki Roy, (m.), 16, <i>Coal-carrier.</i>	Coal	Deceased was loading coal under, or close to, where roof coal was being cut. A piece of coal, measuring 3' 0" x 2' 9" x 1' 0", fell from concealed "slips," through a height of 8 feet and struck him on the head, killing him instantly. Inspection and inquiry made.
55	28th October, 6 P.M.	Begunia Khas mine, Barakar P. O., Bengal.	Maharajah M. C. Nandi	Josoda Baurin, (f.), 42, <i>Coal-carrier.</i>	Coal	Deceased was loading a tub of coal on an underground siding, when a mass of roof coal, measuring 45' 0" x 10' 0" x 1' 2", liberated from a concealed "slip", fell from a height of 6 feet, killing her instantly. Inspection and inquiry made.
56	24th October, 4-30 P.M.	Kalabagh mine, Khewra P. O., Punjab.	Government of India	Rah Nawaz Mohomed, (m.), 38, <i>Miner.</i>	Salt	Deceased was killed by a fall of rock salt, weighing about two tons, from the roof, from a height of 10 feet. Inspection and inquiry made.
57	12th November, 4-10 P.M.	Ramnagar mine, Kulti P. O., Bengal.	Bengal Iron and Steel Co., Ld.	Mohi Tusi, (f.), 23, <i>Coal-carrier.</i>	Coal	Deceased went behind a fence into a goaf. Whilst there, a mass of stone, measuring about 15' 0" x 3' 0" x 2' 0", fell from the roof. She was caught by the edge of the fall and killed instantly. Inspection and inquiry made.
58	16th November, 7-30 A.M.	Bhatdih mine, Mohuda P. O., Bihar and Orissa.	Bengal Bhatdih Coal Co., Ld.	Suklal Bauri, (m.), 38, <i>Coal-cutter.</i>	Coal	Deceased went through a fence and commenced to cut coal from a partially extracted pillar, measuring 15' 0" x 6' 0" at the top and 8' 0" x 4' 0" at the base. The "stook" collapsed of its own weight and fell on to him. He was killed instantly. Inspection and inquiry made.

## APPENDIX II—contd.

## Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—contd.</b>						
<b>Falls of roof—concl'd.</b>						
59	16th November, 3 P.M.	Bhaga mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ltd.	Dukhan Bhuia, (m.), 55, Coal-cutter.	Coal	Deceased was dressing side coal near the face of a main gallery, when a piece of roof stone, measuring 4' 0" x 2' 0" x 0' 8", fell from a concealed "slip" at a height of 6 feet and struck him on the head, fracturing his skull. He died 2½ hours later. Inspection and inquiry made.
60	10th November, 6 A.M.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Lulbir Kumal, (m.), 35, Basket-filler.	Coal	While deceased was filling a basket in an 'opening,' 16 feet high, he was killed by a fall of 5 tons of roof coal.
61	18th November, 11-30 P.M.	Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Messrs. Tata Iron and Steel Co., Ltd.	Latu Chamar, (m.), 38, Coal-cutter.	Coal	Deceased went inside a fence and was cutting overhanging side coal in a disused gallery, when a piece of coal, measuring 4' 0" x 2' 0" x 1' 6", broke away and fell on to him. He sustained a compound fracture of the right arm and severe injuries to the head and died in hospital five days later. Inspection and inquiry made.
62	4th December, 1-30 P.M.	Jamuria mine, Nandi P. O., Bengal.	Equitable Coal Co., Ltd.	Mohan Kole, (m.), 35, Miner. Marti Mejhian, (f), 20; Kirodee Mejhian, (f), 18, Coal-carriers.	Coal	The three deceased were loading fallen roof coal in a fenced-off goaf. A mass of roof coal fell on to them from a height of 10' 6". They were killed instantly. Inspection and inquiry made.
63	13th December, 2-30 P.M.	Tikak Lower mine, Margherita P. O., Assam.	Assam Railways and Trad- ing Co., Ltd.	Mangal Darjee, Nepali, (m.), 24, Basket-filler.	Coal	While deceased was filling coal in an 'opening,' 20 tons of coal fell from the roof of the 'opening' and killed him instantly.
64	24th December, 4-15 P.M.	Nundi mine, Jamuria P. O., Bengal.	Adjai Coal Co., Ltd.	Betul Chamar, (m.), 38, Underground Sirdar.	Coal	Deceased was engaged in withdrawing timbers from under roof coal at the edge of a goaf, when a mass of coal broke away suddenly. Several props were swayed out and deceased was struck down and killed instantly before he could escape. Inspection and inquiry made.
65	21st December, 3 P.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Nowagarh Coal Co., Ltd.	Bhim Meah, (m.), 28, Roof-dresser.	Coal	Whilst deceased was walking into the 'workings,' he was killed by the fall of a mass of stone, 13' 0" x 5' 6" x 1' 6", which fell from the roof 5 feet above. Inspection and inquiry made.
<b>(b) Falls of sides—(56 deaths).</b>						
66	8th January, 12-30 P.M.	Khas Jharia mine, Jharia P. O., Bihar and Orissa.	Khora Ramji	Matla Manjhi, (m.), 24, Coal-cutter.	Coal	Deceased was ordered to cut coal inside a gallery which was being driven through the middle of a pillar. He disobeyed orders and undermined the corner of the pillar until a mass of about one ton of coal fell from a 'slip.' The coal fell on to him from a height of 9 feet. He sustained injuries which resulted in death within half an hour. Inspection and inquiry made.

67	26th January, 0-5 A.M.	Charanpur mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ltd.	Bisau Turi, (m.), 28, <i>Miner.</i>	Coal .	Deceased was killed by a mass of overhanging coal, measuring 7' 0" x 6' 6" x 4' 6", falling from between two converging "slips" in a pillar under extraction. Inspection and inquiry made. ( <i>See Report, page 8.</i> )
68	31st January, 10 A.M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhun Coal Co., Ld.	Bomba Turi, (m.), 32, <i>Miner.</i>	Coal .	The deceased and another man were cutting the corner of a pillar which formed the support for some roof coal. They had been previously warned not to do so. Whilst so doing, a mass of 10 tons of coal fell on to them. Deceased was killed instantly, and his companion was seriously injured. Inspection and inquiry made.
69	22nd February, 5-15 A.M.	Bagdigari mine, Jharia P. O., Bihar and Orissa.	C. J. Smith . . . .	Khudu Deswali, (f.), 30, <i>Coal-carrier.</i>	Coal .	Deceased carried coal for two coal-cutters, who were employed in dressing down overhanging coal from a pillar. Whilst sitting down at the corner of the opposite pillar, she was killed on the spot by a mass of coal, weighing about $\frac{3}{4}$ ton, which fell from a height of 22 feet. Inspection and inquiry made.
70	20th February, 3 P.M.	Phuletto mine, Tavoy P. O., Burma.	Phuletto Mining Syndicate	Whar Nar, (m.), 29, <i>Mining coolie.</i>	Wolfram .	Whilst deceased was drilling in an open cut, half a ton of earth fell on him from a height of 9 feet. He sustained injuries from which he died three months afterwards. His party had been instructed to bar down this particular piece of side, but had neglected to do so.
71	2nd March, 10 P.M.	Tikak (Upper) mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Chatbhakta Brahmin (Nepali), (m.), 25, <i>Tub-filler.</i>	Coal .	Whilst deceased was loading coal in an 'opening,' 18' 0" x 15' 0" x 6' 0" high, he was injured by a mass of about 1 cwt. of coal, which fell from the side. He died a month later. Inspection and inquiry made.
72	6th March, 3 A.M.	Ekra Khas mine, Bansjora P. O., Bihar and Orissa.	Maharaja M. C. Nandi .	Anu Manjhi, (m.), 25, <i>Coal-cutter.</i>	Coal .	Deceased was told to cut floor coal in a gallery. During the absence of the officials he left his working place, broke down a fence and began to cut coal from the corner of a pillar. He was killed on the spot by a mass of coal, weighing about 6 tons, which fell on to him from a height of 20 feet. Inspection and inquiry made.
73	7th March, 4 A.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld. .	Gubi Bauri, (m.), 32, <i>Coal-cutter.</i>	Coal .	Deceased and another coal-cutter, with four female carriers, were employed in dressing a pillar, 26 feet high, in old workings. They left their appointed working place and undermined the corner of another pillar, until a fall of about 10 tons of coal occurred. They were struck by the falling coal. Deceased died a few hours later and the other man was seriously injured. Inspection and inquiry made.
74	15th March, 1 P.M.	Alkusa mine, Kusunda P. O., Bihar and Orissa.	Kanga & Co. . . . .	Pitan Rai, (m.), 35, <i>Coal-cutter.</i>	Coal .	Whilst robbing coal from a pillar, deceased was struck by a mass of about 10 cwt. of coal, which fell from the side, from a height of 10 feet. He died about three hours later. Inspection and inquiry made.
75	2nd April, 2 P.M.	Ena mine, Jharia P. O., Bihar and Orissa.	North-West Coal Co., Ld.	Kubir Bauri, (m.), 18, <i>Coal-cutter.</i>	Coal .	Deceased was ordered to cut floor coal in a gallery, 15 feet high. He undermined the corner of a pillar close to his working place and brought about the fall of a mass of about 5 tons of coal. He was struck by the falling coal and suffered injuries, to which he succumbed an hour later. Inspection and inquiry made.
76	27th March, 8-30 A.M.	Pagaye mine, Tavoy P. O., Burma.	Rangoon Mining Co., Ld.	Aunontaw Muduly, (m.), 25; Bendiah Bhoj, (m.), 28, <i>Contractor's coolies.</i>	Wolfram .	The two deceased were under-cutting the side of an open working with the result that a fall of side occurred and buried them. They were killed instantly.
77	16th May, 10 A.M.	New Peepratand mine, Mohuda P. O., Bihar and Orissa.	P. Mukherji & Co.	Chotu Mahato, (m.), 30, <i>Earth-cutter.</i>	Coal .	Deceased was cutting a foundation trench in an incline. Whilst so doing, a mass of earth, weighing about 2 cwt., fell from the side on to him. He died 12 hours later. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—<i>contd.</i></b>						
<i>(b) Falls of sides—contd.</i>						
78	20th May, 11-30 A.M.	North Lutechipur mine, Sitarampur P. O., Bengal.	North Lutechipur Coal Co.	Manik Manjhi, (m.), 25; Badan Manjhi, (m.), 18, <i>Coal-cutters.</i>	Coal .	The two deceased, with other persons, were at work removing a mass of stone and earth which had fallen from the side of an incline cutting 30 feet deep, when another "slip" occurred, and five of them were partially buried under the fall. The two deceased died from the injuries they received and the three others were injured. Inspection and inquiry made.
79	14th May, 10-30 A.M.	Pagaye mine, Tavoy P. O., Burma.	Bombay-Burmah Trading Corporation, Ltd.	Dasco, (m.), 30; Bhimon, (m.), 25, <i>Tributors.</i>	Wolfram .	The two deceased, although warned to cease, continued to work in a cutting which had become dangerous, were instantly killed by a large fall of side. Inspection and inquiry made.
80	6th May, 1 P.M.	Tagu Mayingyi mine, Mergui P. O., Burma.	U. Shwe Thi . . .	Maung Zan, (m.), 25; Ba Kin, (m.), 27, <i>Miner's tributors.</i>	Wolfram .	The two deceased and another man, who was injured, took refuge from the heat of the day in an abandoned drift. While they were sitting there a collapse of the sides of the drift occurred and they were buried under the fall, being found to be dead when extricated half an hour afterwards.
81	29th May, 9-30 A.M.	Bhowra mine, Jamaoba P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Nago Bhuiya, (m.), 34, <i>Miner.</i>	Coal .	Whilst a miner, against orders, was under-cutting a pillar, a large mass of coal, weighing about 1½ tons, fell from the face of the pillar to the ground and knocked out 3 props. Deceased and another man were struck by two of the falling props, the former being instantly killed whilst the latter received severe scalp wounds. Inspection and inquiry made.
82	31st May, 1-30 P.M.	Charanpur mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ltd.	Lakhi Majbian, (f.), 30, <i>Coal-carrier.</i>	Coal .	Deceased, against orders, started to load some coal which had been blasted down from a pillar in course of extraction, before the roof and side had been examined. A piece of coal, measuring 2' 0" × 1' 9" × 0' 9", fell from a height of 10 feet, ricocheted and struck her on the left leg. She sustained a comminuted fracture and died of heart failure thirty-five hours later. Inspection and inquiry made.
83	5th May, 1 A.M.	Alkasa North mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Kola Meah (m.), 18, <i>Coal-carrier.</i>	Coal .	Deceased was killed by a mass of side coal, weighing about 2½ tons, which fell from the side of a pillar on to him. It was suspected that he was robbing the pillar at the time. Inspection and inquiry made.
84	26th May, 2 P.M.	Pagaye mine, Tavoy P. O., Burma.	Rangoon Mining Co., Ltd.	Khaytoo Boonyar, (m.), 30, <i>Contractor's coolie.</i>	Wolfram .	Whilst deceased was working in an "open cut" a large mass of loose rock suddenly split away from the side and killed him instantly. Inspection and inquiry made.

85	29th June, 4 A.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ltd.	Bhagwandin Passi, (m.), 38, Coal-cutter.	Coal	Deceased was standing on a ladder and engaged in drilling a shot-hole in overhanging coal in a gallery 27 feet high. Part of the coal, measuring 12' 0" × 6' 0" × 3' 0" and weighing 8 tons, fell prematurely. He was struck down and sustained injuries to which he succumbed within half an hour. Inspection and inquiry made.
86	29th June, 3 P.M.	South Kujama mine, Jharia P. O., Bihar and Orissa.	Bagdiggi Kujama Collieries, Ltd.	Ganu Mallik, (m.), 27, Coal-cutter.	Coal	Deceased was one of a gang of eight coal-cutters employed in extracting a pillar in a "working," 15 feet high. He went through a fence into the goaf and began to rob coal from the reverse side of the pillar. A mass of some four tons of coal fell on to him from the side at a height of 4 feet. He was severely injured and died within an hour. Inspection and inquiry made.
87	29th June, 10 A.M.	Borrea mine, Sitarampur P. O., Bengal.	New Beerbhun Coal Co., Ltd.	Gopi Manjhi, (m.), 25, Coal-cutter.	Coal	Deceased was dressing down some overhanging coal from the side of a pillar, in course of extraction, when a portion of it, measuring 8' 0" × 3' 0" × 5' 0", fell over without warning from a height of 10 feet. His right leg was pinned under the coal. He sustained a comminuted fracture of the right leg and died on the way to hospital, four and half hours later. Inspection and inquiry made.
88	3rd July, 1-30 P.M.	Zawc mine, Mergui P. O., Burma.	Saw Lein Lee	Mg. Bwin, (m.), 40, Mining coolie.	Wolfram	Deceased was going to his work up the side of a steep excavation. He was struck by a landslip and buried in the excavation, dying of suffocation.
89	6th July, 3 P.M.	Barari mine, Jharia P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Sashi Bawin, (f.), 22, Coal-carrier.	Coal	While a coal-cutter was robbing coal from the side of a pillar, 24 feet high, and his wife was loading the coal on to a basket, a mass of coal, 15' 0" × 10' 0" × 1' 6" thick, fell on to her from a height of 4 feet. She was killed on the spot. Inspection and inquiry made.
90	13th July, 2 P.M.	Lutchipore mine, Sitarampur P. O., Bengal.	Lutchipore Coal Co., Ltd.	Gonga Roy, (f.), 35, Coal-carrier.	Coal	Deceased went through a fence to rob loose coal from the side of a pillar. A mass of side coal, measuring 12' 0" × 9' 0" × 1' 0", fell over and a portion of it struck her before she could escape, causing internal injuries from which she died 18 hours later. Inspection and inquiry made.
91	22nd July, 8-30 A.M.	Shivrajpur mine, Shivrajpur P. O., Bombay.	Shivrajpur Syndicate, Ltd.	Mohidin Gutti, (m.), 35, Timberman; Ramdeo Gopi, (m.), 25, Assistant Timberman.	Manganese	While the two deceased were preparing the ground for putting new timbers, they were caught by a fall of side. Mohidin Gutti was killed instantly and Ramdeo Gopi died in half an hour. Inspection and inquiry made.
92	31st July, 6-30 A.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ltd.	Jhari Bhoiya, (m.), 55, Coal loader.	Coal	While some pillars, 22 feet in height, were being extracted, a mass of side coal, weighing about 10 tons, fell from the side at a height of 6 feet. Deceased was struck down and killed on the spot. Inspection and inquiry made.
93	4th August, about 4-30 P.M.	Seibon mine, Tavoy P. O., Burma.	Moung Po U.	Moung San Yin, (m.), 32, Clerk; Moung Shwe E, (m.), 28, Coolie.	Tin	Whilst sluicing for tin ore in a drain, a mass of earth fell from the side, owing to an unusual fall of heavy rain, and killed the two deceased.
94	7th August, 1 P.M.	Balaghat mine, Balaghat P. O., Central Provinces.	Central Provinces Prospecting Syndicate, Ltd.	Jhalli, (f.), 55, Earth-worker.	Manganese	Deceased was sitting 5 feet from a rock face, 12 feet high. About 8 tons of rock suddenly fell from the face without warning and killed her.
95	7th August, 4-45 P.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Birbahadur Kami, (m.), 32, Tub-filler.	Coal	Deceased was working in an 'opening' 18 feet high, and was injured by a piece of coal, about 182 lbs. in weight which rolled down the 'opening' on to him. He died a week later.

APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>FALLS OF ROOF AND SIDES—concl'd.</b>						
<i>(b) Falls of sides—concl'd.</i>						
96	1st September, 6-30 A.M.	Sunkerpur mine, Ukhara P. O., Bengal.	Burn & Co., Ltd.	Bhagabati Sinha, (m.), 18, <i>Miner.</i>	Coal	Deceased went into a fenced area to rob a pillar. Whilst so doing, a mass of side coal, weighing about 3 tons, fell on to him. He died 17 hours later. Inspection and inquiry made.
97	12th September, 12-30 P.M.	Bhulanbararee mine, Jharia P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ltd.	Budhan Kole, (m.), 24, <i>Coal-cutter.</i>	Coal	Deceased passed through a fence into old workings and began to cut coal from the corner of a pillar, 28 feet high. He was killed by a mass of coal weighing about 4 tons, which fell from a height of 12 feet. Inspection and inquiry made.
98	14th September, 11-30 A.M.	Parbad (Pahari) mine, Jharia P. O., Bihar and Orissa.	Laxmi Colliery Co.	Piru Mahato, (m.), 20, <i>Earth-cutter;</i> Radhi Mahatan, (f.), 14, <i>Earth-carrier.</i>	Coal	Whilst the two deceased were loading a basket in a quarry, 23 feet to 55 feet deep, a slab of sandstone, 7' 0" x 3' 3" x 3' 0", fell from the side at a height of 4 feet. Radhi was killed on the spot and Piru died within half an hour. Inspection and inquiry made.
99	19th September, 3-30 P.M.	Bokaro mine, Bokaro P. O., Bihar and Orissa.	East Indian Railway Co., Ltd., and Bengal Nagpur Railway Co.	Sukia Kole, (f.), 14, <i>Earth-carrier.</i>	Coal	While working at the earth overburden, overlying the coal in an open working, deceased was killed by a fall of earth from the side, 9' 0" x 6' 0" x 0' 6".
100	20th October, 1 A.M.	Dishergarh mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ltd.	Lalla Maharaj, (m.), 40, <i>Underground Sirdar.</i>	Coal	Deceased was sounding the roof with a 'bunter,' preparatory to dressing down some loose coal on the side of a pillar, when a piece of coal, measuring about 4' 0" x 2' 0" x 1' 6", broke away. He slipped and fell and the coal rolled on to his left thigh, fracturing it. He died in hospital 30 hours later. Inspection and inquiry made.
101	22nd October, 3 P.M.	Bansjora mine, Bansjora P. O., Bihar and Orissa.	Bansjora Coal Co., Ltd.	Rasik Turi, (m.), 36, <i>Coal-cutter.</i>	Coal	A 6 feet "cut" was being taken at the top of a pillar in a seam, 24 feet in thickness. A piece of coal, weighing about 82 lbs., broke away from the side. Deceased who was working on a narrow ledge of coal, 4 feet in width, at the top of the pillar, jumped backwards to escape the falling coal and fell a distance of 18 feet to the ground. He sustained a compound fracture of the left leg and died in hospital three days later. Inspection and inquiry made. (See Report, page 8.)
102	25th October, 4 P.M.	Goneshpur mine, Katrasgarh P. O., Bihar and Orissa.	Economic Coal Co., Ltd.	Chatu Mahato, (m.), 26, <i>Coal-cutter.</i>	Coal	Deceased broke down a fence in a disused gallery and commenced to rob the corner of a pillar, when a mass of side coal, weighing about 2 tons, fell over on to him, killing him instantly. Inspection and inquiry made.
103	1st November, 6-45 A.M.	Ekra Khas mine, Bansjora P. O., Bihar and Orissa.	Maharaja M. C. Nandi	Siba Pandey (m.), 20; Fulo Singh, (m.), 40, <i>Coal-cutters.</i>	Coal	The two deceased, contrary to orders, were undercutting side coal in a quarry, when the coal and a portion of the overburden fell over and buried them. Siba Pandey was suffocated and Fulo Singh sustained serious injuries to the spine and died four days later. Inspection and inquiry made.



104	21st October, 11-30 A.M.	Taungpila mine, Tavoy P. O., Burma.	Quah Cheng Guan .	Maung Zone, (m.), 38, <i>Miner.</i>	Wolfram	Deceased, while working in an "open cut", 7 feet deep, was killed by a fall of the hanging wall, which he had undercut and had left unsupported. Inspection and inquiry made.
105	21st October, 7-30 A.M.	Meke Myebya mine, Tavoy P. O., Burma.	Lim Kyee Yan .	Maung Gyi, (m.), 30, <i>Mining-coolie.</i>	Wolfram	Deceased was working in an "open cut", the sides of which were 7 to 8 feet high. He was struck on the forehead by the handle of his pick, owing to a fall of earth, and rendered unconscious. He was then buried by a further fall. The body was recovered within 20 minutes of the accident, but life was found to be extinct.
106	26th October, 4 P.M.	Saphi mine, Rajauli P. O., Bihar and Orissa.	Radha Kanta Lal .	Barho Teli, (m.), 40, <i>Labourer.</i>	Mica	Deceased was struck by falling stone, from a height of 10 feet, from the side of the mine and succumbed to the injuries received. Another man was slightly injured.
107	9th November, 4-30 A.M.	Chanah mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Gubi Lohar, (m.), 29, <i>Miner.</i>	Coal	Deceased passed through a fence to rob some coal in a goaf. A mass of side coal, weighing about 2 tons, fell on to him from a height of 6 feet. He was killed instantly. Inspection and inquiry made.
108	14th November, 9 P.M.	Sikardih mine, Girdih P. O., Bihar and Orissa.	E. O. R. Myers .	Suke Roy, (m.), 36, <i>Coal-cutter.</i>	Coal	Deceased was bringing down some side coal which he had previously undercut. Whilst so doing, a mass of coal, weighing about 4 cwts., fell on to him from a height of 4 feet. He sustained a compound fracture of the thigh and expired before aid could be rendered. Inspection and inquiry made.
109	13th December, 7 A.M.	Kenwadih mine, Jamadoba P. O., Bihar and Orissa.	Harriladih Coal Co., Ltd.	Gunpat Turi, (m.), 35, <i>Miner.</i>	Coal	Deceased was unlawfully undercutting the corner of a pillar. Whilst so doing a mass of coal and stone, about 1 ton in weight, fell on to him. He was killed instantly. Inspection and inquiry made.
110	28th November, 11 A.M.	Nwalabo mine, Tavoy P. O., Burma.	Tata Sons & Co., Ltd.	Nachhu, (m.), 20, <i>Ore Extracting coolie.</i>	Wolfram	While dressing the side of a cutting about 14 feet high, deceased was killed by a large fall of earth from the side of the cutting.
111	19th December, 10-30 A.M.	Budruchuck mine, Sijua P. O., Bihar and Orissa.	Budruchuck Coal Mining Co., Ltd.	Galoo Bhar, (m.), 28, <i>Propping coolie.</i>	Coal	Deceased was assisting in putting up a prop when a piece of coal and stone which was overhanging from the side of a pillar fell on to his back. He died in hospital nearly three months later.
112	25th December, 11-30 P.M.	Kantapabari mine, Panuria P. O., Bengal.	Burrakur Coal Co., Ltd.	Kamini Mejbhan, (f.), 18, <i>Coal-carrier.</i>	Coal	Deceased was filling coal at the side of a pillar, when a piece of coal, weighing about 2½ cwts., fell on to her from a height of 8 feet, killing her instantly. Inspection and inquiry made.
113	29th December, 4 A.M.	Kenwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Gour Bauri, (m.), 25, <i>Coal-cutter.</i>	Coal	Deceased passed through a fence and undercut the side of a pillar, 18 feet high. He was killed by the fall of about one ton of coal, from a height of 9 feet. Inspection and inquiry made.

IN SHAFTS—(21 deaths.)

OVERWINDING—(3 deaths.)

114	4th March, 1-30 P.M.	Malkera Choitodih mine, Katragarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Asraf Meah, (m.), 30, <i>Hookman</i> ; Karim Meah, (m.), 28, <i>Mason.</i>	Coal	The deceased, Asraf Meah, was being lowered in one of the cages in a shaft, 533 feet deep. The deceased, Karim Meah, was being raised in the other cage. The winding engineman lost control of the winding engine and the ascending cage was drawn up to the top of the head-gear. The cage chains broke and the cage dropped to the bottom of the shaft. The other cage struck the landing platform at the bottom with violence. Karim was killed on the spot and Asraf sustained injuries to which he succumbed 36 days later. The winding engine was fitted with an over-winding prevention device, but it failed to act. Inspection and inquiry made. (See Report, page 9.)
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APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>IN SHAFTS—contd.</b>						
<b>OVERWINDING—concl'd.</b>						
115	15th December, 3-30 P.M.	Sudamdih mine, Bhojudih P. O., Bihar and Orissa.	Empire Coal Co., Ld.	Bukar Kahar, (m.), 38, <i>Sinker.</i>	Coal	During the temporary absence of the winding engineman, the bankman attempted to lower deceased in the bucket at a sinking shaft, 385 feet deep. He lost control of the engine and the bucket plunged violently into water, 30 feet deep, at the bottom of the shaft. When the body was recovered next morning, death was found to have been due to a fracture of the skull. Inspection and inquiry made.
<b>WHILST ASCENDING OR DESCENDING BY MACHINERY—(6 deaths).</b>						
116	3rd March, 1-30 P.M.	Akhalpur mine, Nandi P. O., Bengal.	Hurriladh Coal Co., Ld.	Niri Baurin, (f.), 35, <i>Coal-carrier.</i>	Coal	Deceased fell out of the cage, when descending a shaft 230 feet deep and was killed instantly. She was alone in the cage. Safety bars were provided, but it is doubtful whether they were put in the safety position by the onsetter. Inspection and inquiry made.
117	17th April, 9-30 P.M.	Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Jadagir, (m.), 51, <i>Trolleyman.</i>	Coal	Deceased was in a cage which had just commenced to be lowered in a shaft. He leaned out of the cage to pick up his shoes which were lying on the pit bank. His head was caught between the top of the cage and the flat sheets. He sustained a fracture of the cheek bone and died 9 hours later. Inspection and inquiry made.
118	10th May, 1-30 P.M.	Barmondia mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Abilass Bauri; (m.), 18, <i>Underground Trammer.</i>	Coal	Deceased stepped off the descending cage before it reached the shaft bottom, and fell a distance of 8 feet on to the plates. He sustained a fracture of the right thigh and died from shock 15 hours later. Inspection and inquiry made.
119	11th November, 2-15 P.M.	Bhelatand mine, Sijua P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Pattu Singh, (m.), 30; Bahan Singh, (m.), 34, <i>Stone-cutters.</i>	Coal	The two deceased with one other man, having finished their work in a shaft, were waiting for the bucket to be raised, when the upper flange of the steam valve of the winding engine blew off. The engine ran away and the bucket with its occupants was precipitated to the bottom. Six hundred feet of spare rope on the drum of the engine were unwound and fell upon the men killing the two deceased. The other man escaped with a slight scalp wound. Inspection and inquiry made.

120	31st December, 7-30 P.M.	West Gopalichuck mine, Bansjora P. O., Bihar and Orissa.	Gopalichuck Coal Co., Ld.	Gobinda Dosadh, (m.), 35, <i>Onsetter.</i>	Coal	Deceased fell out of the cage whilst being raised in a shaft, 366 feet deep, and was killed instantly. Inspection and inquiry made.
<b>FALLING FROM THE PART OF THE WAY DOWN—(4 deaths).</b>						
121	4th January, 9 A.M.	Lutchipur mine, Sitarampore P. O., Bengal.	Lutchipur Coal Co., Ld.	Alhad Sing, (m.), 28, <i>Stone-cutter.</i>	Coal	One half of a sinking scaffold was being lowered in a shaft, when it caught a projecting ledge of stone. Deceased, who was on the other half of the scaffold, jumped on to the half which was being lowered and succeeded in freeing it, but the resulting jerk caused the rope suspending it to slip on the drum of the winch to which it was attached. Deceased was thrown off and fell to the bottom of the shaft, a distance of about 100 feet. He was killed instantly. Inspection and inquiry made.
122	31st July, 5-30 P.M.	Jibutil mine, Morrison P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Chenna, (m.), 28, <i>Coolie.</i>	Gold	Deceased was climbing up the ladder in a winze, 100 feet deep, when he fell down a distance of about 40 feet. He sustained a compound fracture of the skull and other serious injuries and died almost immediately. Inspection and inquiry made.
123	28th October, midnight.	Pootki mine, Bansjora P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Nripath Mondal, (m.), 40, <i>Stone-cutter.</i>	Coal	Deceased was working with other stone-cutters, who were widening a shaft. All were standing on a staging suspended in the shaft. Deceased fell from the staging to the bottom of the shaft, a distance of 100 feet, and was killed instantly. Inspection and inquiry made.
124	28th December, 9 A.M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbham Coal Co., Ld.	Jhibu Mahato, (m.), 33, <i>Main gallery driver.</i>	Coal	The covering of a mid-landing in a shaft had been removed, and not replaced, by persons who had been repairing joints in the steam pipes below it. Deceased, unaware of this and unable to set on account of steam at the shaft bottom, walked into the opening and fell a distance of 118 feet to the bottom landing. He was killed instantly. Inspection and inquiry made.
<b>THINGS FALLING FROM THE SURFACE—(3 deaths).</b>						
125	14th May, 12-30 P.M.	Kujama mine, Jharia P. O., Bihar and Orissa.	Kanji and Shamji Nanji	Mutru Kurmi (Mahato), (m.), 25, <i>Stone-cutter.</i>	Coal	Whilst a banksman was changing the coupling chains, preparatory to attaching a water bucket to the rope at the top of a sinking shaft, 210 feet deep, he allowed the chains to fall down the shaft where 9 stone-cutters were at work. The chains fell upon the deceased and killed him. Inspection and inquiry made.
126	4th November, 2 P.M.	Kuardih mine, Kalipahari P. O., Bengal.	Kuardih Coal Co., Ld.	Ibrahim Mohamed (m.), 25, Mustapha Abdul Wahab, (m.), 35, <i>Coal-cutters.</i>	Coal	The two deceased were descending a shaft in the cage, when a plank, measuring 8' 0" x 0' 10" x 0' 2½", fell from the top of the head-gear down the shaft and struck the up-coming cage. The impact caused the cage to oscillate and collide with the other one. Both men were thrown out and fell a distance of 70 feet to the shaft bottom. Ibrahim Mohamed was killed instantly, and Mustapha Wahab died six hours later. Inspection and inquiry made.
<b>THINGS FALLING FROM PART OF THE WAY DOWN—(3 deaths).</b>						
127	27th January, 5-30 A.M.	Parbelia mine, Dishergarh P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Galup Singh, (m.), 30, <i>Shaft sinker.</i>	Coal	Deceased and others were working at the bottom of a sinking shaft when a piece of stone, measuring 2' 0" x 2' 8" x 0' 4", fell from the side through a distance of 40 feet. Deceased was killed instantly, and one other man received injuries to the head and shoulders. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accident, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>IN SHAFTS—concl'd.</b>						
<b>THINGS FALLING FROM PART OF THE WAY DOWN—concl'd.</b>						
128	16th May, 3 P.M.	Kantapahari mine, Panuria P. O., Bengal.	Burrakar Coal Co., Ld.	Shaik Shariff, (m.), 21, <i>Fitter.</i>	Coal .	Deceased was standing in a sinking bucket in a shaft, at a depth of 116 feet from the surface, while an electric sinking pump was being lowered. One of the clamps on the pump cable came into contact with a temporary scaffold, fixed in the shaft, sixty feet above, and loosened a batten, measuring 4' 0" x 0' 10" x 0' 1½", which fell down the shaft and struck deceased on the head, killing him instantly. Inspection and inquiry made.
129	5th December, 1 A.M.	Parbelia mine, Disheigarh P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Doulat Dasadh, (m.), 45, <i>Stone-cutter.</i>	Coal .	Deceased was working at the bottom of a sinking shaft, when a small piece of stone fell from the side of the shaft on to his neck. He was killed instantly. Inspection and inquiry made.
<b>MISCELLANEOUS—(2 deaths).</b>						
130	25th March, 1 A.M.	Jibutil mine, Morriston P. O., Madras.	Jibutil (Anantapur) Mines, Ld.	K. Raman, (m.), 22, <i>Underground Contractor.</i>	Gold .	Deceased walked into the ladderway opening at a level. He fell a distance of about 35 feet and fractured his skull. Death was instantaneous. Inspection and inquiry made.
131	6th October, 9 A.M.	Garlitand mine, Sijua P. O., Bihar and Orissa.	New Manbhum Coal Co., Ld.	Bahadur Chsmar, (m.), 25, <i>Tub-pusher.</i>	Coal .	Whilst deceased was pushing a loaded tub out of the cage, at the top of a winding shaft, the rear end of the cage tilted down, as it was not properly seated on the keps. The tub ran back and pinned down deceased on the floor of the cage. His chest was severely crushed and his lungs were ruptured, causing death a few minutes later. Inspection and inquiry made.
<b>EXPLOSIVES—(9 deaths).</b>						
132	11th January, 2 A.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway.	Gurmakh Singh, (m.), 27, <i>Miners' mate.</i>	Coal .	Deceased was firing a round of seven shots underground. He had lighted four shots and, while lighting the fifth, one of the shots, previously lit, exploded and killed him.
133	11th January, 11 A.M.	Hataria mine, Kodarma P. O., Bihar and Orissa.	Hoare Miller & Co.	Nagendra Nath Ghose, (m.), 30, <i>Fitter mistry.</i>	Mica .	Deceased was examining a petrol pump underground with an open light. An explosion of petrol occurred burning deceased and two others. Deceased died from his injuries 11 days afterwards.
134	16th May, 7 A.M.	Craddock mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ld.	Daraksah Gond, (m.), 25, <i>Underground Sirdar.</i>	Coal .	Three shot holes in the corner of a pillar had been prepared by the shot-firer. Deceased, who was a sirdar, stopped him from firing them until some props had been withdrawn. While the shot-firer was preparing other shot holes, deceased, without being authorised to do so, fired the shots. He was struck by the blown down pieces of coal and killed.

135	5th May, noon.	Tilana mine, Ajmer P. O., Rajputana.	Rajputana Mica & Minerals Co., Ltd.	Ghisa Lall, (m.), 19, <i>Labourer.</i>	Mica .	Deceased was sitting by some gun-powder which had been spread out to dry. In some way or other, the powder exploded and deceased was burnt so severely that he died 9 days later.
136	12th June, 10-30 A.M.	Jamadoba mine, (No. 1 Division), Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Janki Dosai, (m.), 36, <i>Miner.</i>	Coal .	Whilst deceased was drying some gun-powder in the sun, a spark from a fire fell upon the powder and ignited it. He was severely burnt and died four days later. Inspection and inquiry made.
137	30th August, 10 A.M.	Charanpur mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ltd.	Bhairab Pasi, (m.), 30, <i>Coal-cutter.</i>	Coal .	Deceased was drying some gun-powder at, or near, his cooking stove, when it exploded. He was burnt about the face, arms and legs, and died 9 days later. Inspection and inquiry made.
138	9th December, 8 P.M.	Bankaimulla mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ltd.	Manik Manjhi, (m.), 48 ; Budrai Manjhi, (m.), 43, <i>Miners ;</i> Srimati Mejbian, (f.), 38, <i>Miners' kamin.</i>	Coal .	The deceased were killed by an explosion of gun-powder in a miners' hut; they were probably manufacturing cartridges, for shot firing underground at the time. Inspection and inquiry made. ( <i>See Report, page 9.</i> )

**IRRUPTIONS OF WATER or FALLING INTO  
WATER—(6 deaths).**

139	21st June, 0-15 A.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ltd.	Gungri Kole, (f.), 22, Panwa Kole, (f.), 20, <i>Coal-carriers ;</i> Sukri Kole, (f.), 2, <i>Not employed.</i>	Coal .	Owing to an embankment on the surface giving way during a very heavy fall of rain, a large volume of water flowed into the mine through surface subsidences. The three deceased were swept away and drowned. Inspection and inquiry made. ( <i>See Report, page 9.</i> )
140	18th September, between 7 A.M. & 8 A.M.	Pursoda mine, Rantek P. O., Central Provinces.	Central India Mining Co., Ltd.	Ghoonia, (m.), 21, <i>Fireman.</i>	Manganese	Deceased was found drowned in the mine excavation. He had apparently gone there to wash himself and had slipped into the water in the excavation.
141	3rd November, 1-30 P.M.	Tirody mine, Tirody P. O., Central Provinces.	Rao Sahib D. Laxminarayan.	Satiram, (m.), 22, <i>Coolie.</i>	Manganese	Deceased was drowned in a water-logged portion of the mine, in which, against orders, he was bathing.
142	4th November, 10 A.M.	Sukli mine, Kamptee P. O., Central Provinces.	Central India Mining Co., Ltd.	Mathi Abir, (m.), 40, <i>Miner.</i>	Manganese	Deceased was drowned in a disused portion of the mine.

**HAULAGE—(22 deaths).**

143	11th January, 9-30 P.M.	Kankani mine, Banejora P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Mongal Dhobi, (m.), 35, <i>Underground-hookman.</i>	Coal .	A train of six full tubs and two empty tubs was being raised up an incline when the rope broke and the train ran back. Deceased was caught and crushed against the side of a pillar, receiving injuries from which he died two hours later. Inspection and inquiry made.
144	29th January, 4 A.M.	Malkera-Choitodih mine, Katragarh P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ltd.	Bandan Singh, (m.), 19, <i>Coal-carrier.</i>	Coal .	Deceased, whilst lying asleep on the rails at the foot of a haulage road, was killed by a runaway tub. The runaway was due to the opening out of a D link coupling. The pin of the D link had, probably, not been inserted. Inspection and inquiry made. ( <i>See Report, page 10.</i> )
145	7th February, 4-50 P.M.	Ledo (Old West) mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Sitaram Teli, (m.), 21, <i>Signaller.</i>	Coal .	Deceased, against orders, was riding out of the mine on a train of 28 loaded tubs, which was being hauled on a level road. He was found dead close to a manhole. Death was due to injuries to the head. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>HAULAGE—concl'd.</b>						
146	1st March, 4 P.M.	Alkusa South mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Mohar Turi, (m.), 25, Coal-outter.	Coal	Whilst a train of eight empty tubs was being lowered down a haulage slope, the rope broke. Deceased, who was walking down the incline at the time, was run over and sustained injuries, to which he succumbed two days later. The rope was a new one. The engineman had so much slack rope on the drum that the train ran some distance down the slope before the slack was taken up. The resulting jerk snapped the rope. Inspection and inquiry made.
147	12th March, 3 P.M.	Albion mine, Nowagarh P. O., Bihar and Orissa.	Albion Coal Co., Ld.	Jagu Mahato, (m.), 11, Bailing coolie.	Coal	Whilst a train of six tubs was being hauled round a curve out of an underground landing, the single cylinder of the hauling engine got on the dead centre and it was necessary to lower the train a short distance. In the course of lowering, two tubs fell over on the inside of the curve. Deceased, who happened to be passing at the time, was crushed between the tubs and the side of the road. He died ten days later. Inspection and inquiry made.
148	28th March, 7-45 A.M.	Jamadoba mine (No. 1 Division), Jbaria P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Khudro Dhobi, (m.), 25, Fan engineman.	Coal	Deceased jumped on a train of tubs which was being hauled up an underground incline. He fell off and was crushed between the tubs and the side of the road. He succumbed to his injuries on the following day. Inspection and inquiry made.
149	4th May, 8 P.M.	Bhatdih mine, Mohuda P. O., Bihar and Orissa.	Bengal Bhatdih Coal Co., Ld.	Padma Rajwarin, (f.), 30, Coal-carrier.	Coal	Deceased was pushing an empty tub along a tram road, rising at 1 in 25. Being without a light, she probably became alarmed by the noise of tubs coming in the opposite direction, on a parallel line. She left the tub and ran back, but the tub followed and ran over her. She sustained a compound fracture of the thigh and died six weeks later. Inspection and inquiry made.
150	2nd May, 11-50 P.M.	Madhuband mine, Katragarh P. O., Bihar and Orissa.	Jumuni Coal Co., Ld.	Hemia Meah, (f.), 30, Coal-carrier.	Coal	Whilst a train of tubs was being drawn out of a level on a haulage incline, the haulage rope broke. The train ran back into the level, derailed and collided with an overturned tub in which deceased was sitting. She was killed instantly. The train was not provided with a drag. Inspection and inquiry made.
151	28th May, 1-30 P.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways & Trading Co., Ld.	Sewlall Jaisi, (m.), 22, Timberman.	Coal	Deceased was standing at the bottom of an underground self-acting incline. The men at the bottom of the incline omitted to fasten the empty tub to the rope, with the result that the loaded tub ran wild down the incline, running over deceased at the bottom and killing him.
152	26th July, 8 P.M.	Sudhi mine, Sitarampur P. O., Bengal.	Sudhi Coal Co., Ld.	Babulal Bauri, (m.), 35, Lineman.	Coal	Deceased was riding on the front of a train of tubs. Whilst so doing, he was struck by a bar set to support the roof. He sustained an injury to the spine and died one and-a-half months later. Inspection and inquiry made.

153	26th July, 1-15 A.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Sir K. C. Daga & others .	Irayah, (m.), <i>Trammer.</i> 25,	Coal	As a train of empty tubs was being lowered down a haulage plane, one tub became detached from the train and ran wild. Deceased was lying asleep at the bottom. He appears to have got up but was not able to get away in time. From his injuries he appears to have been squeezed between the empty tub and the side, or fell down heavily in his effort to get away. He died 8 hours later.
154	10th August, 10 A.M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhun Coal Co., Ld.	Paira Roy, (m.), 26, <i>Miner.</i>	Coal	Whilst deceased was riding on an empty tub which was being drawn up a haulage incline, the tub derailed and he was thrown off. He sustained injuries to the head and died of concussion of the brain. Inspection and inquiry made.
155	16th August, 8 A.M.	Sodepur mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Rakhal Bauri, (m.), 30, <i>Trammer.</i>	Coal	While a loaded tub was passing through a brattice door, it derailed and knocked out a prop, which fell upon deceased, breaking his neck. Inspection and inquiry made.
156	23rd August, 10 P.M.	Titilmuri mine, Sijua P. O., Bihar and Orissa.	Titilmuri Collieries, Ld.	Budhan Sonar, (m.), 35, <i>Hookman.</i>	Coal	Whilst a train of 8 empty tubs was being lowered down a haulage slope, the rope broke and the tubs ran wild. Deceased was run over and sustained injuries to which he succumbed within a few minutes. Inspection and inquiry made. ( <i>See Report, page 11</i> ).
157	20th September, 10 A.M.	Jamadoba mine, (No. 3 Division), Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Agnu Bhuiya alias Gyan, (m.), 40, <i>Trammer.</i>	Coal	Whilst deceased and another trammer were pushing a loaded tub on a level tram line, they were overtaken by another tub which was being pushed by two other men. Deceased was crushed between the tubs. His spine was fractured and he died on the following day. Inspection and inquiry made.
158	24th September, 1-30 P.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Dokalu Chamar, (m.), 35, <i>Coal-cutter.</i>	Coal	Whilst a coal-cutter and his wife were pushing an empty tub in by, some other tubs ran wild from a siding and collided with the tub. Deceased who was pushing another tub was knocked down and sustained injuries, to which he succumbed five hours later. Inspection and inquiry made.
159	20th September, 9-30 P.M.	Khost mine, Khost P. O., Baluchistan.	North-Western Railway .	Bagga, (m.), 26, <i>Billman.</i>	Coal	Deceased was riding down a steep incline on a train of tubs. As the slope changed he raised his head which was crushed between the top of a tub and the roof.
160	4th October, 8 P.M.	Jailgora mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Khiri Baurin, (f.), 25, <i>Coal-carrier.</i>	Coal	Deceased was lying down on the side close to a curve in an underground tram line. A ride-tipping tub of coal which was being pushed out, overturned and fell on to her. She sustained injuries from which she died 13 days later. Inspection and inquiry made.
161	6th October, 1 A.M.	South Bulliari mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Sanjo Majhian, (f.), 16, <i>Coal-carrier.</i>	Coal	Deceased appears to have been lying asleep just beyond the end of a level tram line in which there was no buffer stop. A miner pushed an empty tub over the end of the line. One of the wheels struck deceased on the head and killed her instantly. Inspection and inquiry made.
162	6th October, 10-30 A.M.	Sarakdih mine, Asansol P. O., Bengal.	Sarakdih Syndicate, Ld.	Kali Charan Bauri, (m.), 42, <i>Pump coolie.</i>	Coal	A train of fifteen empty tubs was being lowered down an incline, when the coupling of the last tub broke and released the tubs, which ran away down the incline. Deceased was overtaken by the tubs, knocked down and killed instantly. Inspection and inquiry made.
163	12th October, 9 A.M.	Jamgram mine, Kantapahari P. O., Bengal.	Burrakar Coal Co., Ld.	Dhanua Manjhi, (m.), 30, <i>Coal-cutter.</i>	Coal	Deceased, contrary to orders, went up a "jig" line when the tubs were in motion. His lamp went out and he fell in front of the descending tubs. He was struck on the chest by the front tub and sustained serious internal injuries, from which he died 4½ hours later. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>UNDERGROUND MACHINERY—(2 deaths.)</b>						
164	18th October, 3-30 A.M.	Jealgora mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Sagar Manjhi, (m.), 22, <i>Coal-cutter.</i>	Coal	Deceased was lying down on the side of an underground tram line, in spite of being warned that tubs of coal were being let down by hand to the top of a "jix." A side-tipping tub overturned close to him and struck him. He sustained a fracture of the spine and ribs, and died almost immediately. Inspection and inquiry made.
165	3rd May, 5-30 P.M.	Benakuri mine, Toposi P. O., Bengal.	Benakuri Coal Co., Ld.	Rojoni Roy, (m.), 18, <i>Engine-driver.</i>	Coal	Deceased, whilst endeavouring to straighten and tighten some loose coils of rope on the drum of a haulage engine, was carried on to the top of the drum, where he was found in a badly mutilated condition. In the absence of eye-witnesses, it was presumed that the throttle lever of the engine was accidentally touched by deceased, or caught by a loose coil of rope and opened wide, causing the engine to race. The loose coils of rope struck a protective roofing fixed over the engine and brought it down upon deceased, who fell against the drum which was running at high speed. He died three hours later. Inspection and inquiry made. ( <i>See Report, page 11.</i> )
166	26th November, 10 A.M.	Banksimulla mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ld.	Makunda Moddok, (m.), 42, <i>Pump khalassie.</i>	Coal	Deceased was found entangled in the gearing of an electrically-driven pump. The pump was fenced and it was assumed, therefore, that deceased was caught in the gearing, whilst in the act of oiling the pump when it was in motion. Inspection and inquiry made.
<b>SUNDRIES UNDERGROUND—(14 deaths.)</b>						
167	20th February, 3 P.M.	Kurhurbaree mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Bisun Dosadh, (m.), 35, <i>Miner.</i>	Coal	Deceased was blown over by an air blast following the unexpected fall of the main roof of an old goaf. He sustained dislocations of the left elbow and left hip and died 17 days later. Inspection and inquiry made.
168	19th March, 4 P.M.	Kurhurbaree mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Raghu Bhuia, (m.), 45, <i>Miner.</i>	Coal	Deceased was sitting on the edge of a "bench" or terrace, formed at the top of a pillar under extraction. He fell suddenly to the ground through a distance of 13 feet and fractured his skull. It is assumed that he was sleeping at the time. Inspection and inquiry made.
169	25th March, 3-30 P.M.	Kutchidhana mine, Ramakona P. O., Central Provinces.	Indian Manganese Co., Ld.	Daulot Kole, (m.), 55, <i>Coolie.</i>	Manganese	Owing to the collision of some tubs deceased got frightened and, in his fright fell off the step on which he was standing on to the next step, 5 feet below. He fell face downwards on some rock and received injuries from which he died three days later.



170	23rd May, 5-30 P.M.	Fularibad mine, Jharis P. O., Bihar and Orissa.	Khas Jharis Coal Co.	Dhanukdhari Mahato, (m.), 55, Signaller.	Coal	A coolie, being ordered to take a pair of tub wheels on an axle down a haulage slope, attempted to do so by rolling them on the tram rails. They slipped from his grasp and ran wild. His warning shouts alarmed deceased who, although he was sitting in a safe place, attempted to run along a level cross gallery. He tripped on a sloping bench of floor coal and fell heavily. He was assisted out of the mine and was not thought to be seriously hurt, but died on the following day. Inspection and inquiry made.
171	30th May, 4-50 P.M.	Chanch mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Gobinda Chandra Baxi, (m.) 25, Underground over- man.	Coal	Deceased was standing, superintending the withdrawing of some timbers from a goaf in a seam 9 feet thick. A portion of the "local" roof, measuring 5' 0" x 3' 6" x 1' 0", gave way suddenly and swayed out a prop, which struck him on the right temple. He died two and-a-half hours later of cerebral hæmorrhage. Inspection and inquiry made.
172	21st June, 7 A.M.	Mohpani mine, Mohpani P. O., Central Provinces.	Great Indian Peninsula Railway Co.	Luchoo Lodhan, (f.), 45, Coal-carrier.	Coal	Deceased was carrying some earth in a basket down some steps which had been cut in the split coal between the top and bottom sections of the seam. The steps were worn and slippery and did not make a sharp cut on the edge of the tread. She slipped and received injuries from which she died on the following day. Inspection and inquiry made.
173	22nd June, 8 P.M.	Widnes mine, Tavoy P. O., Burma.	High Speed Steel Alloys Mining Co., Ltd.	Chaw Ki, (m.), 41, Tributor.	Wolfram	The sides of an "open cut" were being cleaned out. Deceased was standing on the floor of the "open cut" when the floor gave way, breaking through into an old unknown tunnel. This caused part of the side of the "open cut" to fall. Deceased fell into the old tunnel and was buried by the fall of earth.
174	23rd June, 4 P.M.	Pachaung mine, Tavoy P. O., Burma.	Wagon Pachaung Wolfram Mines, Ltd.	Mam Pye, Burman, (m.), 35, Tributor.	Wolfram	Deceased was killed by being struck on the head by a falling stone, detached by a natural fall of earth from the hill side above where he was working in an excavation.
175	7th September, 6-30 A.M.	Sodepur (No. 7) mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ltd.	Gayaram Bauri, (m.), 45, Underground Sirdar.	Coal	Deceased was found lying dead on an underground tram line. His legs were in contact with the delivery pipe of an electrically-driven pump. Although no marks were found on his body it was presumed that he had been electrocuted. Inspection and inquiry made.
176	23rd September, 12-30 P.M.	Malkera Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Nizam Panjabi, (m.), 37, Labourer.	Coal	Deceased was one of a gang of men engaged in cleaning the bottom of a cage pit which had just been dewatered. The shaft bottom was lighted by a temporary arrangement of electric lamps. Electric current was supplied at 220 volts by a lead-covered cable, carried by a galvanized iron rope, suspended from planking on the surface. The insulation of the cable was defective. Deceased touched the cable accidentally, fell across it and remained there for a few minutes until removed. Prolonged artificial respiration was applied but failed to restore animation. Inspection and inquiry made. (See Report, page 11).
177	9th October, 12-30 P.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ltd.	Janki Meah, (m.), 50, Coal-cutter.	Coal	Deceased was stepping on to a ladder at the top of a ledge of coal about 8 feet from the ground, which sloped away from the ledge, and was slippery. He missed his footing and, falling to the ground caught his knee against a heap of loose stones. He died in hospital 39 days later from suffocation and exhaustion. Inquiry made.
178	1st December, 12-10 P.M.	Ghusick mine, Kalipahari P. O., Bengal.	Ghusick and Muslia Collieries, Ltd.	Indi Roy, (m.), 32, Assistant filter; Indi Chona, (m.), 25, Pump-khalassic.	Coal	The two deceased were sitting on the side of a shaft level, underneath a pipe, 3 inches in diameter, which conveyed steam to a pump inbye. When the stop valve on the surface was opened to start the pump, the packing blew out of a flanged joint in the pipe. Both of the men were badly scalded by the escaping steam and died several hours later. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>SUNDRIES UNDERGROUND—<i>conold.</i></b>						
179	2nd December, 2-30 P.M.	Durgapur mine, Chanda P. O., Central Provinces.	Chanda Coal Prospecting Syndicate, Ld.	Ramdoe, (m.), 43, <i>Coal-filler.</i>	Coal	Deceased was sitting on a coal tub which was run into by another tub which was being pushed by hand. He received injuries to his leg and died four weeks later.
<b>SURFACE BOILERS OR PIPES BURSTING— (1 death.)</b>						
180	23rd July, 3 A.M.	Northern mine, Nowagarh P. O., Bihar and Orissa.	Northern Coal Co., Ld.	Sujayat Meah, (m.), 18, <i>Pump khalassie.</i>	Coal	Whilst a vertical boiler was under steam, the inner shell bulged in on two opposite sides of the fire grate and four of the rivetted stays pulled through. Steam escaping through these holes, broke down the fire grate. Deceased was found in a sitting position about 10 feet in front of the open door of the fire-box. He was scalded so severely that he died 6 hours later. Inspection and inquiry made.
<b>SURFACE RAILWAYS AND TRAMWAYS BELONG- ING TO THE MINE—(5 deaths).</b>						
181	2nd April, 4 P.M.	Golukdih mine, Jharia P. O., Bihar and Orissa.	N. M. Chowdhury & Co.	Biadar Singh, (m.), 50, <i>Labourer.</i>	Coal	Deceased was run over by a locomotive whilst crossing a bridge. He succumbed to his injuries some 12 hours later. Inspection and inquiry made.
182	19th May, 11-30 A.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Durga Julhin, (f.), 45, <i>Labourer.</i>	Coal	Deceased was watching a train of tubs being lowered on a surface self-acting incline. As the train passed, an iron locker in the wheels of one of the tubs struck her. She sustained a lacerated wound above the knees and died from shock two days later. Inspection and inquiry made.
183	26th July, 10 A.M.	Mayo mine, Khehra P. O., Panjab.	Government of India	Mohomed Din, (m.), 30, <i>Fireman.</i>	Salt	Deceased fell off a locomotive engine which was drawing a train of tubs from the mine and was crushed by the wheels of one of the tubs. He died one and-a-half hours later. Inquiry made.
184	27th September, 6 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trad- ing Co., Ld.	Sohagi Kole, (f.), 22, <i>Tub-filler.</i>	Coal	Deceased was run over and killed by a train of tubs on a surface incline.
185	9th October, 5-45-P.M.	Kutchidhana mine, Rauakona P. O., Central Provinces.	Indian Manganese Co., Ld.	Jangi, (m.), 40, <i>Transporting coolie.</i>	Manganese	Deceased, while pushing a tub on a surface tramway, was struck by another tub from behind. He died on the following day from concussion of the spine.

MISCELLANEOUS ON SURFACE—(25 deaths).

186	15th January, 6 A.M.	Kujama mine, Jharia P. O., Bihar and Orissa.	Kanji and Shamji Nanji	Sodagar Dom, (m.), 45, <i>Colliery sweeper.</i>	Coal	While passing, at night, over a bridge, 22 feet high, carrying a tram road over river, deceased somehow fell through the fencing of the bridge. He was found early in the morning in the river bed and died shortly afterwards. Inspection and inquiry made.
187	21st January, 9 A.M.	Pagaye mine, Tavoy P. O., Burma.	Rangoon Mining Co., Ltd.	Neels, (m.), 30, <i>Contractor's coolie.</i>	Wolfram	While deceased was cutting down a tree, it fell on to him and killed him instantly.
188	27th January, 3 P.M.	Wagon North mine, Tavoy P. O., Burma.	Finlay Fleming & Co.	Chun See, (m.), 40, <i>Mining coolie.</i>	Wolfram	Deceased was breaking quartz at the head of a dump. He lost his balance and fell 30 feet down the dump, receiving injuries from which he died 5 hours later.
189	26th March, 4-30 P.M.	Khechaung mine, Tavoy P. O., Burma.	Quah Cheng Guan	Maung Aung-Sa, (m.), 28, <i>Labourer.</i>	Wolfram	Deceased was killed by a piece of rock which became detached by natural agencies from a precipitous hill-side on which the workings of the mine are situated.
190	12th April, 7-30 P.M.	Bhowra mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Srinath Kahar, (m.), 28, <i>Mine munshi.</i>	Coal	Deceased's clothes were accidentally ignited by the flame of an open oil lamp which he was carrying in his hand. He was severely burned and died three days later. Inspection and inquiry made.
191	17th April, 12-30 P.M.	Sudamdih mine, Bhojudih P. O., Bihar and Orissa.	Sudamdih Coal Co., Ltd.	Ramjan Meah, (m.), 14, <i>Engine cleaner.</i>	Coal	Deceased was drowned in a fenced boiler tank. He was washing some clothes and it is presumed that he overbalanced and fell in. The tank is 50' x 30' x 10' deep, and was completely fenced. Inspection and inquiry made.
192	11th April, 6 P.M.	Durgapur mine, Chanda P. O., Central Provinces.	Chanda Coal Prospecting Syndicate, Ltd.	Rajeshar Kembi, (m.), 45, <i>Surveyor's coolie.</i>	Coal	Deceased was caught by a runaway wheel by which timber was being drawn out of a shaft. The impact threw him into the shaft and killed him.
193	11th May, 5 P.M.	Muralidih mine, Mohuda P. O., Bihar and Orissa.	Bengal Coal Co., Ltd.	Sarup Chamar, (m.), 25, <i>Fitter.</i>	Coal	Deceased was found drowned in a boiler tank. There were no witnesses to the accident, but it is assumed that whilst soaking some boiler lagging composition he fell in and was drowned. The tank, which measured 32' x 18' x 9' was properly fenced. Inspection and inquiry made.
194	14th May, 4 P.M.	Goria mine, Dharhara P. O., Bihar and Orissa.	Ambler Slate & Stone Co., Ltd.	Biranchi Modi, (m.), 30, <i>Driller.</i>	Slate	Deceased was lowering out a block of stone from a hill-side. The block split suddenly, injuring him fatally.
195	3rd June, 4-30 P.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Khalley Mangar, (m.), 36, <i>Brakeswallah.</i>	Coal	Deceased was sitting on the brick pillar of a brake wheel. He fell down inside and was injured by the wheel. He died four days later.
196	5th June, 10 A.M.	New Tetturia mine, Katrasgarh P. O., Bihar and Orissa.	New Tetturia Coal Co., Ltd.	Suraj Meah, (m.), 36, <i>Fitters' coolie.</i>	Coal	Deceased and five companions were turning the handles of a winch, which was being used to pull a Lancashire boiler along the surface. An unexpected jerk on the rope caused the handles to revolve backwards. Deceased was struck a blow, which resulted in his death in the following day. Inspection and inquiry made.
197	7th June, 12-30 P.M.	Kantapaheri mine, Panuvia P. O., Bengal.	Burrakar Coal Co., Ltd.	Ladho Gope, (m.), 27, <i>Hammerman.</i>	Coal	Deceased, for some unknown reason, climbed up a trestle supporting electric wires through which a current of 550 volts was passing. His right arm came into contact with the bare wire and he was electrocuted. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
<b>MISCELLANEOUS ON SURFACE—concl'd.</b>						
198	1st July, 2 P.M.	Angarpathra mine, Katrasgarh P. O., Bihar and Orissa.	Angarpathra Colliery Co.	Badhava Panjabi, (m.), 42, <i>Contractor for fitting machinery</i> ; Mewa Bhat, (m.), 21, <i>Labourer.</i>	Coal	A contractor with four labourers were employed in placing a Lancashire boiler in position on its seating. The boiler rolled off the lifting jacks and crushed the contractor and one of the labourers. The former was killed instantly and the latter died a few minutes later. Inspection and inquiry made.
199	6th July, 1-30 P.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Che Chin, (m.), 35, <i>Sluicing tributor.</i>	Wolfram	Deceased, contrary to orders, placed a stop across a water race. When some upper gates were shut, an abnormal quantity of water passed through his gate, owing to the stop. This caused a stone to fall on him, causing such injuries that he died seven hours afterwards.
200	13th July, — A.M.	Kanbounk mine, Tavoy P. O., Burma.	Kanbounk (Burma) Wolfram Mines, Ld.	Kanta, (m.), 30, <i>Coolie.</i>	Wolfram	Deceased was killed by the fall of earth from the face of an hydraulic working.
201	27th July, 5-30 P. M.	Central Kurkend mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ld.	Sukar Rai, (m.), 18, <i>Labourer.</i>	Coal	Deceased was one of a gang engaged in cleaning out a water softening tank, 8 feet deep. The tank is divided into 10 compartments, and whilst five of these were dry, the others contained water at a temperature of from 128° to 136°F. There are doors in each of the four corners of the oblong walling surrounding the tank. At the close of the day's work, deceased, instead of leaving by the nearest door, attempted to do so by the opposite door. In walking along the top of one of the partition walls, he slipped and fell into the tank. He was severely scalded and died four days later. Inspection and inquiry made.
202	27th July, 8-30 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Lee Tak Hun, (m.), 47, <i>Sluicing tributor.</i>	Wolfram	As deceased was engaged in sluicing during a heavy storm of rain, a heap of stones fell from the side and buried him. He was killed instantly.
203	22nd July, 10 P.M.	Heinda mine, Tavoy P. O., Burma.	Steel Brothers & Co., Ld.	Shu Shan, (m.), 29, <i>Tributor.</i>	Wolfram	Deceased, presumably, was walking on the trunk of a tree, which had fallen across a stream. He slipped and fell to the rocky bed below receiving injuries which resulted in his death.
204	14th August, 1 A.M.	Nwalabo mine, Tavoy P. O., Burma.	Tata Sons & Co., Ld.	Mahabir, (m.), 28, <i>Coolie.</i>	Wolfram	A tree fell on the coolie line, where deceased was sleeping at the time, and killed him.
205	15th August, 9-30 A.M.	Widnes mine, Tavoy P. O., Burma.	High Speed Steel Alloys Mining Co., Ld.	Po Myaing, (m.), 38, <i>Sawyer.</i>	Wolfram	Whilst deceased and two other men were sheltering in a sawpit during a very severe storm, a tree was blown down into the saw pit. Deceased was killed and the other two men were injured.
206	28th August, 4-57 P.M.	Rakha Hills mine, Rakha mines P. O., Bihar and Orissa.	Cape Copper Co., Ld.	Harnam Sing, (m.), 35, <i>Carpenter.</i>	Copper	While deceased was working on the roof of a building, about 24 feet high, he missed his footing and fell, head foremost, on an iron eyebeam, which was lying on the floor. He was killed instantly.

207	19th August, noon.	Widnes mine, Tavoy P. O., Burma.	High Speed Steel Alloy Mining Co., Ltd.	Yea Fut, (m.), 20, <i>Tributor.</i>	Wolfram .	Two trunks of trees which had been felled some months previously, were lying at an angle to each other, the end of one trunk resting on the other. Some coolies were clearing a water course passing under the end of the lower trunk, when the upper trunk slid along the lower trunk and fell on deceased and killed him.
208	5th October, 7-30 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ltd.	Fakyr, (m.), 30, <i>Fuel-cutter.</i>	Wolfram .	Deceased and another fuel-cutter, while endeavouring to work a large log down a hill-side, was crushed by the log. He succumbed to a fractured skull.
209	31st December, 11-30 A.M.	Sodepur (Nos. 9 and 10 Pits) mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ltd.	Khetto Bagti, (m.), 45, <i>Sawyer.</i>	Coal .	Deceased, whilst sawing wood, overbalanced and fell from a scaffold to the ground, a distance of 5½ feet. He sustained serious internal injuries and died shortly afterwards. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
<b>DEATHS NOT INCLUDED IN THE STATISTICS.—(53 deaths.)</b>							
1	4th January, 6 A.M.	Burelia mine, Chora P. O., Bengal.	Burelia Coal Co., Ld.	Raghnandan Gope, (m.), 32, Coal-Cutter.	Coal	Not a mining accident.	Whilst deceased was cooking his food his clothes caught fire. He died from his injuries four days later.
2	12th January, 1 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Wazid (Pathan), (m.), 35, Labourer.	Coal	Not a mining accident.	While deceased was hand shunting a railway wagon at night, he was run into and killed by a second wagon which was being hand shunted behind him. Inspection and inquiry made.
3	21st January, midnight.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakar Coal Co., Ld.	Behari, (m.), 35 ; Sekoo, (m.), 37, Fitters.	Coal	Not a mining accident.	Deceased were asphyxiated by a fire in their dhowra at night.
4	27th January, 9 P.M.	Sibpore mine, Charanpur P. O., Bengal.	Katras Jharria Coal Co., Ld.	Bhim Majhi, (m.), 11.	Coal	Not employed	Deceased's clothes caught fire from a tin lamp which he was carrying. He died from his injuries six days later.
5	28th January, 1 P.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Chetni Ghatwarin, (f.), 28 ; Bhatni Ghatwarin, (f.), 11.	Coal	Not employed	The two deceased went into an old disused incline to rob coal. A mass of overhanging coal, weighing about two tons, fell from a height of six feet on to them, killing them instantly. Inspection and inquiry made.
6	13th February, 4 P.M.	Baraboni mine, Charanpur P. O., Bengal.	Baraboni Coal Concern, Ld.	Gopinath Pal, (m.), 75.	Coal	Not employed	Deceased was knocked down by a passing tub of coal whilst crossing a surface tram-line. He sustained serious injuries and died 56 hours later. Inspection and enquiry made.
7	16th February, 4 P.M.	Ranigunge mine, Ranigunge P. O., Bengal.	Bengal Coal Co., Ld.	Khenty Baurin, (f.), 22, Loading coolie.	Coal	Not a mining accident.	A loaded wagon was being hand shunted on a siding. Deceased, who was evidently underneath the wagon, pushing the front axle, slipped and fell. One of the front wheels passed over her right leg, fracturing it close to the thigh. She died 5 hours later after the limb had been amputated. Inspection and enquiry made.
8	16th February, 9-30 P.M.	Godhar mine, Kusunda P. O., Bihar and Orissa.	S. B. Raha and Son	Kitia Chamar, (m.), 3½.	Coal	Not employed	Deceased and another child were sleeping by the side of a pillar when a coal-carrier passing close to them stumbled and let fall a piece of coal, weighing about 30 seers. The coal struck deceased on the head, inflicting serious injuries, from which he died an hour later. Inspection and inquiry made.
9	10th March, 6-30 P.M.	Rajhara mine, Rajhara P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Mondi, (f.), 20.	Coal	Not employed	Deceased apparently threw herself into an air shaft, 85 feet deep. The shaft was properly fenced.

10	28th March, 1 P.M.	Kurkend (East) mine, Kusunda P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Umdi Pasini, (f.), 35.	Coal .	Not employed	Deceased was drowned in a boiler feed-water tank, 10 feet deep. Inspection and inquiry made.
11	17th April, noon.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakar Coal Co., Ld.	Bhujan Barhi, (m.), 30. Biswa Barhi, (m.), 21. <i>Carpenter's coolies.</i>	Coal .	Not a mining accident.	The two deceased were drowned whilst bathing in an old water-logged quarry. Inspection and inquiry made.
12	16th April. 9-30 A.M.	Cradock mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ld.	Ramanand, (m.), 40, <i>Office clerk</i> ; Munir Khan, (m.), 25; Sabadulla, (m.), 20, <i>Powder Contractor's employee.</i>	Coal .	Not a mining accident.	The three deceased were killed by an explosion of gun-powder at the general colliery powder factory, owing either to a match or a cigarette being lit by one of them.
13	7th May, not known.	Bhowra mine, Jamaloha P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Makhna Bhuiya, (m.), 8.	Coal .	Not employed	Deceased was found drowned in a colliery bathing tank. Inspection and inquiry made.
14	10th May, 9 A.M.	Jamuria mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Bisson Bauri, (m.), 8.	Coal .	Not employed	Deceased, a child of weak intellect, was found crushed between the frame and wheel of the "tension bogie" of an endless haulage system. He sustained fractures of the right leg and left arm and other serious injuries, from which he died two hours later. The pulley was unfenced. Inspection and inquiry made.
15	18th April, not known.	Kurluhans mine, Giridi P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Jitni Ghatwarin, (f.), 50.	Coal .	Not employed	Deceased was found drowned at the bottom of an old shaft. Inspec- tion and inquiry made.
16	17th May, 7-30 A.M.	Goria mine, Dharti P. O., Bihar and Orissa.	Ambler Slate and Stone Co., Ld.	Kanna Kora, (m.), 25, <i>Coolie.</i>	Slate .	Not a mining accident.	When going to his work in the mine deceased slipped down the face of a steep hill. He received injuries from which he died the same day.
17	19th May, 9 A.M.	Kodaiga mine, Saonar P. O., Central Provinces.	Indian Manganese Co., Ld.	Shamrao, (m.), 9.	Manganese	Not employed	Deceased while bathing, placed his body across the bore of a delivery pipe just as the pump had been stopped. Owing to the foot valve leaking the water in the delivery pipe flowed back and owing to the position of deceased's body a partial vacuum was set up in the delivery pipe pressing the body hard against the pipe. This set up such severe internal injuries that he died shortly after being released.
18	16th May, 6-15 P.M.	Tikuri mine, Katni P. O., Central Provinces.	Katni Cement and In- dustrial Co., Ld.	Sundi, (f.), 8.	Bauxite .	Not employed	Deceased was drowned while bathing in water at the bottom of an excavation.
19	30th April, noon.	Bullia mine, Kusunda P. O., Bihar and Orissa.	Bullia Coal Co., Ld.	Bulki Kamarin, (f.), 14; Makhia Kaharin, (f.), 25.	Coal .	Not employed	The two deceased were drowned while bathing in an old quarry. The quarry was fenced. Inspection and inquiry made.

APPENDIX II—contd.

Fatal Accidents, 1918—contd.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
<b>DEATHS NOT INCLUDED IN THE STATISTICS—contd.</b>							
20	6th May, 10 P.M.	Bhutgoria mine, Jharia P. O., Bihar and Orissa.	Aldih Coal Co., Ltd.	Bepat Chamar, (m.), 35, Depot coolie.	Coal	Not a mining accident.	While a wagon was being hand-shunted in a colliery siding, on a dark night, it got out of control. Deceased was told to run ahead and put on the brakes of a stationary wagon. He was overtaken by the runaway wagon, knocked down by the buffers and killed on the spot. Inspection and inquiry made.
21	27th May, 5 A.M.	Bhutgoria mine, Jharia P. O., Bihar and Orissa.	Aldih Coal Co., Ltd.	Peasi, (f), 8.	Coal	Not employed.	Deceased was found drowned in a boiler tank. Inspection and inquiry made.
22	25th May, 0-30 A.M.	Balampore mine, Raniganj P. O., Bengal.	Balampore Coal Co., Ltd.	Sabu Bauri, (m.), 10.	Coal	Not employed	Deceased, with another child, was sleeping on the side of the gallery in which his father was working, when a piece of shale, measuring 2' 0" x 1' 0" x 0' 3", fell from the roof, at a height of 8 feet, and struck him. He died 6½ hours later. Inspection and inquiry made.
23	25th May, 0-30 A.M.	Kantapahari mine, Panuria P. O., Bengal.	Burrakar Coal Co., Ltd.	Sovan Shaik, (m.), 28, Kali Bauri, (m.), 30, Oyadali Shaik, (m.), 21, Fitters; Bihari Bauri, (m.), 33, Babulal Rajowar (m.), 18, Coolies.	Coal	Not a mining accident.	A railway tank, containing 4,000 gallons of kerosene, was being unloaded. The bulk of the oil had been pumped into a storage tank on the side of the line and the balance was being carried in "chatties" and "tins" to a smaller tank in the store-godown. One of the deceased persons appears to have opened a manhole in the top of the railway tank for the purpose of ascertaining the quantity of oil left in it. The oil in the tank, being in a gaseous state was ignited in some way (probably by a lamp) exploded and burst into flame. The four deceased died as a result of burns which they received. Inspection and inquiry made. (See Report page 12).
24	20th May, 4-30 P.M.	Budruchuck mine, Sijua P. O., Bihar and Orissa.	Budruchuck Coal Mining Co., Ltd.	Sukhai Gope, (m.), 25.	Coal	Not employed	Deceased was drowned in an old clay pit. Inspection and inquiry made.
25	5th June, 5 P.M.	Mandra mine, Katrasgarh P. O., Bihar and Orissa.	Bihar Aryan Coal Co.	Dukana Rajwar, (m.), 10, Coolie.	Coal	Not a mining accident.	The straw roof of a hut was blown off during a storm and fell on to deceased who was beside a domestic fire. He was burnt to death. Inspection and inquiry made.
26	21st June, 7-45 A.M.	Bansjora mine, Bansjora P. O., Bihar and Orissa.	Bansjora Coal Co., Ltd.	Kodu Mondal, (m.), 30, Sinking Contractor.	Coal	Not a mining accident.	Deceased was standing on the edge of a platform, partly covering the mouth of a sinking well. He was helping to raise a rope to which were attached a couple of tins of water. Whilst so doing, the rope broke and caused him to overbalance, and fall down the well in which he was drowned. Inspection and inquiry made.



27	29th June, 10 P.M.	Sunkerpore mine, Ukhara P. O., Bengal.	Burn & Co., Ld.	Chandra Pal Singh, (m.), 45, Shotfirer.	Coal .	Not a mining accident.	Deceased was severely burned by a fire which occurred in a row of miners' huts. He died 30 hours later from shock. Inspection and inquiry made.
28	10th July, 9 A.M.	South Kujama mine, Jharia P. O., Bihar and Orissa.	Bagdiggi Kujama Collieries, Ld.	Mohabir Ram, (m.), 5.	Coal .	Not employed	Deceased fell into an unfenced reservoir, measuring 100' x 50' and was drowned. After the accident the reservoir was fenced. Inspection and inquiry made.
29	6th July, 11 P.M.	Begonia Khas mine, Barakar P. O., Bengal.	Maharaja M. C. Nandi.	Surabala Fauri, (f.), 29.	Coal .	Not employed	The body of deceased was found in an old shaft containing water, and it was assumed that she had committed suicide. The shaft was fenced. Inspection and inquiry made.
30	15th July, 5-30 A.M.	Pretoria mine, Charanpur P. O., Bengal.	Sibpur Coal Co., Ld.	Pares Luram Marwari, (m.), 56.	Coal .	Not employed	Deceased committed suicide by jumping down a pit. Inspection and inquiry made.
31	18th July, 11 A.M.	Goneshpur mine, Katrasgarh P. O., Bihar and Orissa.	Economic Coal Co., Ld.	Raghubir Dosadh, (m.), 10.	Coal .	Not employed	Deceased climbed the wall of a boiler feed tank, slipped into the water and was drowned. The tank was walled all round. Inspection and inquiry made.
32	16th July, about 1-30 P.M.	Kutchidhans mine, Ramakona P. O., Central Provinces.	India Manganese Co., Ld.	Chandrahan, (m.), 10.	Manganese	Not employed	Deceased entered the water in an excavation, got beyond his depth and was drowned.
33	24th July, 1-30 P.M.	Kustore (North) mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Dhansai Gara, (m.), 10.	Coal .	Not employed	The deceased, unnoticed by any one, went through a fence and passed beneath the drum of a hauling engine. There was some slack rope, which, when the engine was started, caught him by the neck and carried him round the drum. His neck was broken. Inspection and inquiry made.
34	31st July, 8-20 A.M.	Bhajipani mine, Pench P. O., Central Provinces.	Pench River Coal Co., Ld.	Bhola Gond, (m.), 30, Miner.	Coal .	Not a mining accident.	While hand shunting operations were in progress on a railway siding, deceased, who was standing between two wagons, was crushed between the buffers of the wagons and was killed instantly.
35	8th August, 6-30 P.M.	Shampore mine, Nirshachatti P. O., Bihar and Orissa.	Shampore Coal Co., Ld.	Mongla Manjhi, (m.), 10.	Coal .	Not employed	Deceased and his companions were playing on some ground adjacent to a waterlogged airshaft. Whilst so doing, one of his playmates threw deceased's stick into the mouth of the shaft, where it lodged on a ledge. Deceased, in attempting to recover it, slipped and fell into the shaft. Inspection and inquiry made.
36	31st August, 9 A.M.	Lower Jharia mine, Jharia P. O., Bihar and Orissa.	G. K. Dossa and Sons	Mothura Hajjam, (m.), 20.	Coal .	Not employed	Deceased attempted to jump on to a train of loaded coal tubs which was being drawn by a locomotive. He fell between the tubs and sustained injuries to which he succumbed on the following night. Inspection and inquiry made.
37	6th September, 6-15 P.M.	Bagdiggi mine, Jharia P. O., Bihar and Orissa.	C. J. Smith	Sadhu Muchin, (f.), 55, Miner's Kamin.	Coal .	Not a mining accident.	While deceased was crossing the railway line, at the colliery, she was knocked down by a passenger train sustaining injuries from which she died half an hour later.
38	9th September, 6 A.M.	Tetturia mine, Katrasgarh P. O., Bihar and Orissa.	D. N. Ghose and Bros.	Agnu Bhuiya, (m.), 45, Loading-coolie.	Coal .	Not a mining accident.	Deceased was run over and killed whilst engaged in hand-shunting a wagon in the colliery siding. Inspection and inquiry made.
39	28th September, 9 A.M.	Burelia mine, Chora P. O., Bengal.	Burelia Coal Co., Ld.	Khoka Bawri, (m.), 4.	Coal .	Not employed.	Deceased was playing near some empty wagons and released a brake, causing a wagon to move forward. The child stumbled and one of the wheels passed over him. He died the following day.

APPENDIX II—*contd.*

Fatal Accidents, 1918—*conold.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
<b>DEATHS NOT INCLUDED IN THE STATISTICS—<i>conold.</i></b>							
40	5th November, 1 P.M.	Lodna mine, Jharla P. O., Bihar and Orissa.	Lodna Colliery Co., Ltd.	Radhia Dhanukin, (f.), 40.	Coal . .	Not employed.	Deceased fell into an abandoned incline containing water and was drowned. Inspection and inquiry made.
41	6th November, not known.	Raniganj mine, Raniganj P. O., Bengal.	Bengal Coal Co., Ltd.	Not known.	Coal . .	Not employed.	The deceased's body was found at the bottom of a shaft, 57 feet deep. It was presumed that her body had been thrown down the shaft. The fencing around the shaft was in order. Inspection and inquiry made.
42	Not known.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhun Coal Co., Ltd.	Lugi Mejhian, (f.), 20, Coal-carrier.	Coal . .	Not a mining accident.	Deceased was found drowned in a well. Inspection and inquiry made.
43	5th December, 1 P.M.	Rana mine, Charanpur P. O. Bengal.	Economic Coal Co., Ltd.	Gosto Turi, (m.), 11.	Coal . .	Not employed.	Deceased jumped on to a passing train of colliery trucks, slipped and fell under the wheels. He was killed instantly. Inspection and inquiry made.

## APPENDIX II—contd.

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1918.

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 . . . . .	2,617	12	11	2	13	78	69	12	81	6.25	8.33	4.97		
	Naga Hills . . . . .	370	...	...	...	...	...	...	...	...	...	...	...		
	Sibsagar . . . . .	68	...	...	...	...	...	...	...	...	...	...	...		
	<b>TOTAL</b>	<b>3,055</b>	<b>12</b>	<b>11</b>	<b>2</b>	<b>13</b>	<b>78</b>	<b>69</b>	<b>12</b>	<b>81</b>	<b>5.62</b>	<b>1.82</b>	<b>4.26</b>		
Baluchistan	Kalat . . . . .	78	...	...	...	...	...	...	...	...	...	...	...		
	Loralai . . . . .	20	...	...	...	...	...	...	...	...	...	...	...		
	Quetta-Pishin . . . . .	124	...	...	...	...	...	...	...	...	...	...	...		
	Sibi-Khost . . . . .	771	2	2	...	2	1	1	...	1	4.88	...	2.59		
<b>TOTAL</b>	<b>993</b>	<b>2</b>	<b>2</b>	...	<b>2</b>	<b>1</b>	<b>1</b>	...	<b>1</b>	<b>3.57</b>	...	<b>2.01</b>			
Bengal	Bankura, Raniganj . . . . .	124	...	...	...	...	...	...	...	...	...	...	...		
	Birbhum " . . . . .	129	...	...	...	...	...	...	...	...	...	...	...		
	Burdwan " . . . . .	45,886	52	65	6	71	42	39	8	47	2.24	.31	1.55		
	<b>TOTAL</b>	<b>46,149</b>	<b>52</b>	<b>65</b>	<b>6</b>	<b>71</b>	<b>32</b>	<b>39</b>	<b>8</b>	<b>47</b>	<b>2.23</b>	<b>.35</b>	<b>1.54</b>		
Bihar and Orissa	Hazaribagh {	Bokaro . . . . .	7,224	1	1	...	1	11	2	9	11	.23	...	.14	
		Ramgarh . . . . .	9,357	5	5	...	5	14	9	5	14	.79	...	.53	
		Giridih . . . . .	1,427	1	1	...	1	...	...	...	..	1.27	...	.70	
	Maubhum, Jharua . . . . .	87,581	80	77	12	89	79	56	24	80	1.42	.36	1.02		
	" Raniganj . . . . .	9,861	5	5	...	5	6	4	2	6	.85	...	.61		
	Palamau, Daltonganj . . . . .	848	...	...	...	...	2	2	...	2	...	...	...		
	Sambalpur, Hingir-Rampur . . . . .	741	...	...	...	...	...	...	...	...	...	...	...		
	Sonthal Parganas, Jainty . . . . .	1,386	2	3	...	3	3	3	...	3	4.34	...	2.16		
	" Raniganj . . . . .	223	...	...	...	...	...	...	...	...	...	...	...		
<b>TOTAL</b>	<b>118,650</b>	<b>94</b>	<b>92</b>	<b>12</b>	<b>104</b>	<b>115</b>	<b>76</b>	<b>40</b>	<b>116</b>	<b>1.26</b>	<b>.26</b>	<b>.88</b>			
Central Provinces	Chanda, Ballarpur . . . . .	1,801	3	2	1	3	8	5	3	8	1.98	1.28	1.67		
	Chhindwara, Pench Valley . . . . .	2,740	3	3	...	3	5	3	2	5	1.50	...	1.09		
	Narsinghpur, Mohpani . . . . .	1,506	1	1	...	1	1	...	1	1	1.08	...	.66		
	Yeotmal . . . . .	3	...	...	...	...	...	...	...	...	...	...	...		
<b>TOTAL</b>	<b>6,052</b>	<b>7</b>	<b>6</b>	<b>1</b>	<b>7</b>	<b>14</b>	<b>8</b>	<b>6</b>	<b>14</b>	<b>1.52</b>	<b>.47</b>	<b>1.16</b>			
North-West Frontier Province.	Hazara . . . . .	12	...	...	...	...	...	...	...	...	...	...			
Panjab	Jhelum . . . . .	1,161	...	...	...	...	4	3	1	4	...	...	...		
	Mianwali . . . . .	49	...	...	...	...	...	...	...	...	...	...	...		
	Shahpur . . . . .	128	...	...	...	...	...	...	...	...	...	...	...		
<b>TOTAL</b>	<b>1,338</b>	...	...	...	...	<b>4</b>	<b>3</b>	<b>1</b>	<b>4</b>	...	...	...			
<b>GRAND TOTAL (COAL)</b>		<b>176,269</b>	<b>168</b>	<b>176</b>	<b>21</b>	<b>197</b>	<b>255</b>	<b>196</b>	<b>67</b>	<b>263</b>	<b>1.60</b>	<b>.31</b>	<b>1.12</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 1918—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.
<b>B.—MICA.</b>												
Bihar and Orissa .	Bhagalpur . . . . .	8	...	...	...	...	...	...	...	...	...	
	Gaya . . . . .	2,327	1	1	...	1	1	2	...	2	59	43
	Hazaribagh . . . . .	15,429	1	1	...	1	3	2	1	3	10	06
	Monghyr . . . . .	3,432	...	...	...	...	...	...	...	...	...	...
	Sambalpur . . . . .	146	...	...	...	...	...	...	...	...	...	...
	Manbhum . . . . .	22	...	...	...	...	...	...	...	...	...	...
	TOTAL	21,364	2	2	...	2	4	4	1	5	14	08
Madras . . . . .	Nellore . . . . .	3,550	...	...	...	...	...	...	...	...	...	...
	Salem . . . . .	213	...	...	...	...	...	...	...	...	...	...
	TOTAL	3,763	...	...	...	...	...	...	...	...	...	...
Rajputana . . . . .	Ajmer-Merwara . . . . .	445	1	...	1	1	1	1	...	1	6.49	2.25
	Nasirabad . . . . .	20	...	...	...	...	...	...	...	...	...	...
	TOTAL	465	1	...	1	1	1	1	...	1	6.25	2.15
	GRAND TOTAL (MICA)	25,592	3	2	1	3	5	5	1	6	12	12
<b>C.—MANGANESE.</b>												
Bombay . . . . .	Panch Mahale . . . . .	1,022	1	2	...	2	2	1	1	2	2.56	1.96
Central Provinces .	Balaghat . . . . .	5,801	2	2	...	2	1	...	1	1	42	34
	Bhandara . . . . .	553	1	1	...	1	1	1	...	1	2.34	1.81
	Chhindwara . . . . .	2,114	2	1	1	2	1	...	1	1	56	2.92
	Nagpur . . . . .	4,036	1	1	...	1	...	...	...	...	34	2.5
	TOTAL	12,504	6	5	1	6	3	1	2	3	51	48
Madras . . . . .	Visagapatam . . . . .	317	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (MANGANESE)	13,843	7	7	1	8	5	2	3	5	64	58
<b>D.—LIMESTONE.</b>												
Central Provinces .	Jabalpur-Katol . . . . .	1,886	...	...	...	...	1	1	...	1	...	...
	Bilaspur . . . . .	104	...	...	...	...	...	...	...	...	...	...
	TOTAL	1,990	...	...	...	...	1	1	...	1	...	...
Panjab . . . . .	Hosharpur . . . . .	60	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (LIMESTONE)	2,050	...	...	...	...	1	1	...	1	...	...

## 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 1918—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>E.—SALT.</b>															
Panjab . . . . .	Jhelum . . . . .	811	1	1	1	1	5	3	2	5	...	14.08	1.28		
	Mianwali . . . . .	88	1	...	...	1	...	...	...	...	11.36	...	11.36		
	Shahpur . . . . .	81	...	...	...	...	...	...	...	...	...	...	...		
	<b>GRAND TOTAL (SALT)</b>	<b>980</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>1.10</b>	<b>14.08</b>	<b>2.04</b>		
<b>F.—GEMS.</b>															
Burma . . . . .	Mogok (Rubies, etc.) . . . . .	1,300	...	...	...	...	3	1	2	3	...	...	...		
<b>G.—SLATE.</b>															
Bihar and Orissa . . . . .	Monghyr . . . . .	215	1	...	1	1	2	2	1	3	...	34.48	4.65		
Panjab . . . . .	Gurdaspur . . . . .	5	...	...	...	...	...	...	...	...	...	...	...		
	Gurgaon . . . . .	195	...	...	...	...	...	...	...	...	...	...	...		
	Kangra . . . . .	275	...	...	...	...	...	...	...	...	...	...	...		
	<b>TOTAL</b>	<b>475</b>	...	...	...	...	...	...	...	...	...	...	...		
<b>GRAND TOTAL (SLATE)</b>	<b>690</b>	<b>1</b>	...	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>3</b>	...	<b>5.21</b>	<b>1.45</b>			
<b>H.—GOLD.</b>															
Bihar and Orissa . . . . .	Singhbhum . . . . .	183	...	...	...	...	...	...	...	...	...	...	...		
Madras . . . . .	Anantapur . . . . .	1,004	2	2	...	2	7	8	1	9	4.10	...	1.99		
<b>GRAND TOTAL (GOLD)</b>	<b>1,187</b>	<b>2</b>	<b>2</b>	...	<b>2</b>	<b>7</b>	<b>8</b>	<b>1</b>	<b>9</b>	<b>3.70</b>	...	<b>1.68</b>			
<b>I.—IRON ORE.</b>															
Bihar and Orissa . . . . .	Singhbhum . . . . .	1,087	...	...	...	...	...	...	...	...	...	...	...		
Central Provinces . . . . .	Jabalpur . . . . .	130	...	...	...	...	...	...	...	...	...	...	...		
Rajputana . . . . .	Ajmer-Merwara . . . . .	22	...	...	...	...	...	...	...	...	...	...	...		
<b>GRAND TOTAL (IRON ORE)</b>	<b>1,239</b>	...	...	...	...	...	...	...	...	...	...	...	...		
<b>J.—WOLFRAM.</b>															
Bihar and Orissa . . . . .	Singhbhum . . . . .	96	1	1	...	1	...	...	...	...	25.00	...	10.42		
Burma . . . . .	Mergui . . . . .	402	2	3	...	3	...	...	...	...	35.71	...	7.46		
	Tavoy . . . . .	8,884	21	12	11	28	19	10	10	20	2.46	2.74	2.59		
	Thahton . . . . .	996	...	...	...	...	...	...	...	...	...	...	...		
	<b>TOTAL</b>	<b>10,282</b>	<b>23</b>	<b>15</b>	<b>11</b>	<b>26</b>	<b>19</b>	<b>10</b>	<b>10</b>	<b>20</b>	<b>2.72</b>	<b>2.31</b>	<b>2.58</b>		
<b>GRAND TOTAL (WOLFRAM).</b>	<b>10,378</b>	<b>24</b>	<b>16</b>	<b>11</b>	<b>27</b>	<b>19</b>	<b>10</b>	<b>10</b>	<b>20</b>	<b>2.88</b>	<b>2.28</b>	<b>2.60</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 1918—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>K.—MAGNESITE.</b>													
Madras . . . . .	Salem . . . . .	353	...	...	...	...	1	...	1	1	...	...	...
<b>L.—CHROMITE.</b>													
Baluchistan . . . . .	Quetta Fishin . . . . .	2	...	...	...	...	...	...	...	...	...	...	...
	Zhob . . . . .	164	...	...	...	...	1	1	...	1	...	...	...
	TOTAL . . . . .	166	...	...	...	...	1	1	...	1	...	...	...
Bihar and Orissa . . . . .	Singhbhum . . . . .	247	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (CHROMITE)	413	...	...	...	...	1	1	...	1	...	...	...
<b>M.—COPPER ORE.</b>													
Bihar and Orissa . . . . .	Singhbhum . . . . .	1,314	1	...	1	1	2	...	3	3	...	89	76
Burma . . . . .	Lower Chindwin . . . . .	30	...	...	...	...	...	...	...	...	...	...	...
Central Provinces . . . . .	Balaghat . . . . .	12	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (COPPER)	1,356	1	...	1	1	3	...	3	3	...	87	74
<b>N.—BAUXITE.</b>													
Central Provinces . . . . .	Jabalpur . . . . .	120	...	...	...	...	...	...	...	...	...	...	...
<b>O.—CLAY.</b>													
Bihar and Orissa . . . . .	Manbhum . . . . .	547	...	...	...	...	1	...	1	1	...	...	...
	Palamau . . . . .	181	...	...	...	...	1	1	...	1	...	...	...
	TOTAL . . . . .	728	...	...	...	...	2	1	1	2	...	...	...
Central Provinces . . . . .	Jabalpur . . . . .	328	...	...	...	...	...	...	...	...	...	...	...
Delhi . . . . .	Delhi . . . . .	28	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (CLAY)	1,079	...	...	...	...	2	1	1	2	...	...	...
<b>P.—GALENA.</b>													
Central Provinces . . . . .	Drug . . . . .	26	...	...	...	...	...	...	...	...	...	...	...
<b>Q.—TIN.</b>													
Barma . . . . .	Mergui (Maliwan) . . . . .	56	...	...	...	...	...	...	...	...	...	...	...
	Tavoy . . . . .	67	1	2	...	2	...	...	...	...	2500	...	2985
	Thaton . . . . .	300	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (TIN)	423	1	2	...	2	...	...	...	...	1010	...	473

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 1918—*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>R.—STEATITE.</b>															
Central Provinces . . .	Jabalpur . . . . .	178	...	...	...	...	...	...	...	...	...	...	...	...	...
Madras . . . . .	Kurnool . . . . .	9	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTAL (STEATITE).</b>		187	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>S.—OCHRE.</b>															
Bihar and Orissa . . .	Puri . . . . .	29	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>T.—GRAPHITE.</b>															
Rajputana . . . . .	Ajmer-Merwara . . . . .	18	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>U.—APATITE.</b>															
Bihar and Orissa . . .	Singhbhum . . . . .	150	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>V.—BARYTES.</b>															
Madras . . . . .	Kurnool . . . . .	41	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>W.—MOLYBDENITE.</b>															
Burma . . . . .	Tavoy . . . . .	15	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>GRAND TOTAL (ALL MINES)</b>		267,738	269	206	87	248	300	260	92	232	1,37	42	1,02		

## APPENDIX II—contd.

Table No. 3.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1918, classified according to the age and sex of the workers.

MINERAL.	PROVINCE AND MINERAL FIELD.	Number of separate fatal accidents.	NUMBER OF DEATHS.								TOTAL BELOW AND ABOVE GROUND.		
			BELOW GROUND.				ABOVE GROUND.						
			Adult males.	Adult females.	Children (under 13).	TOTAL.	Adult males.	Adult females.	Children (under 13).	TOTAL.			
	Assam, Lakhimpur . . . . .	12	11	...	...	11	1	1	...	3	13		
	Baluchistan, Sibi, Khost . . . . .	2	2	...	...	2	...	...	...	...	2		
	Bengal, Raniganj . . . . .	53	56	9	...	65	5	1	...	6	71		
COAL . . . . .	Bihar and Orissa.	Bokaro, Ramgarh . . . . .	1	...	1	...	1	...	...	...	...	1	
		Giridih . . . . .	5	5	...	...	5	...	...	...	...	5	
		Jharis, Hazaribagh . . . . .	1	...	...	1	1	...	...	...	...	1	
		Jharis, Manbhum . . . . .	80	60	15	2	77	11	1	...	12	89	
		Manbhum, Raniganj . . . . .	5	5	...	...	5	...	...	...	...	5	
		Sonthal Parganas, Jainty . . . . .	2	3	...	...	3	...	...	...	...	3	
		TOTAL BIHAR AND ORISSA . . . . .	94	73	16	3	92	11	1	...	12	104	
		Central Provinces	Chanda . . . . .	3	2	...	...	2	1	...	...	1	3
	Chhindwara . . . . .		3	3	...	...	3	...	...	...	...	3	
	Narsinghpur . . . . .		1	...	1	...	1	...	...	...	...	1	
	TOTAL CENTRAL PROVINCES . . . . .	7	5	1	...	6	1	...	...	1	7		
	TOTAL COAL . . . . .	168	147	26	3	176	18	3	...	21	197		



## APPENDIX II—contd.

Table No. 3—contd.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1918, classified according to the age and sex of the workers—contd.

MINERAL.	PROVINCE AND MINERAL FIELD.	Number of separate fatal accidents.	NUMBER OF DEATHS.								TOTAL BELOW AND ABOVE GROUND.	
			BELOW GROUND.				ABOVE GROUND.					
			Adult males.	Adult females.	Children (under 12).	TOTAL.	Adult males.	Adult females.	Children (under 12).	TOTAL.		
COPPER	Bihar and Orissa, Singhbhum	1	...	...	...	...	1	...	...	...	1	
GOLD	Madras, Anantapur	2	2	...	...	2	...	...	...	...	2	
MANGANESE	Bombay, Panchmahals	1	2	...	...	2	...	...	...	...	2	
	Central Provinces	{ Balaghat	2	1	1	...	2	...	...	...	...	2
		{ Bhandara	1	1	...	...	1	...	...	...	...	1
		{ Chhindwara	2	1	...	...	1	1	...	...	1	2
		{ Nagpur	1	1	...	...	1	...	...	...	...	1
	TOTAL CENTRAL PROVINCES	6	4	1	...	5	1	...	...	1	6	
TOTAL MANGANESE	7	6	1	...	7	1	...	...	1	8		
MICA	Bihar and Orissa	{ Gaya	1	1	...	...	1	...	...	...	1	
		{ Hazaribagh	1	1	...	...	1	...	...	...	1	
	TOTAL BIHAR AND ORISSA	2	2	...	...	2	...	...	...	...	2	
	Rajputana, Ajmer-Merwara	1	...	...	...	...	1	...	...	1	1	
TOTAL MICA	3	2	...	...	2	1	...	...	1	3		
SALT	Panjab	{ Jhelum	1	...	...	...	1	...	...	1	1	
		{ Mianwali	1	1	...	...	1	...	...	...	1	
TOTAL SALT	2	1	...	...	1	1	...	...	1	2		
SLATE	Bihar and Orissa, Monghyr	1	...	...	...	...	1	...	...	1	1	
TIN	Burma, Tavoy	1	2	...	...	2	...	...	...	...	2	
WOLFRAM	Bihar and Orissa, Singhbhum	1	1	...	...	1	...	...	...	...	1	
	Burma	{ Mergui	2	3	...	...	3	...	...	...	3	
		{ Tavoy	21	12	...	...	12	11	...	...	11	23
	TOTAL BURMA	23	15	...	...	15	11	...	...	11	26	
TOTAL WOLFRAM	24	16	...	...	16	11	...	...	11	27		
GRAND TOTAL (ALL MINERALS)		209	176	27	3	206	34	3	...	37	243	

## APPENDIX II—concl'd.

Table No. 4.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1918, 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.	Eruptions of water or falling into water.	Haulage.	Miscellaneous below ground.	Surface.	Total deaths.	Below ground.	Above ground.	Below and above ground.
Coal . . . . .	168	12	67	38	19	...	7*	3	22	13	16	197	1·60	·31	1·12
Copper . . . . .	1	...	...	...	...	...	...	...	...	...	1	1	...	·87	·74
Gold . . . . .	2	...	...	...	2	...	...	...	...	...	...	2	3·70	...	1·68
Manganese . . . . .	7	...	...	3	...	...	...	3	...	1	1	8	·64	·34	·58
Mica . . . . .	3	...	...	1	...	...	2	..	...	...	...	3	·12	·11	·12
Salt . . . . .	2	...	1	...	...	...	...	...	...	...	1	2	1·10	14·06	2·04
Slate . . . . .	1	...	...	...	...	...	...	...	...	...	1	1	...	5·21	1·45
Tin . . . . .	1	...	...	2	...	...	...	...	...	...	...	2	10·10	...	4·73
Wolfram . . . . .	24	...	2	12	...	...	...	...	...	2	11	27	2·88	2·28	2·60
TOTAL 1918 . . . . .	200	12	70	56	21	...	9*	6	22	16	31	243	1·37	·42	1·02
TOTAL PRECEDING YEAR . . . . .	175	1	61	50	16	3	9	4	20	15	22	201	1·30	·36	·85
DIFFERENCE . . . . .	+34	+11	+9	+6	+5	-3	...	+2	+2	+1	+9	+42	+·07	+·06	+·07

\* Include three surface accidents.

## APPENDIX III.

## PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901.

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1918.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	REMARKS.
Bihar and Orissa	Manbhan	1	1	1	Section 20, Rule 1 of Notification No. 5072-113, dated 1st July 1916.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	...	Ditto ditto	... Withdrawn. Accused not traceable.
	Do.	1	1	...	Ditto ditto	... Acquitted.
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Section 20, Rules 1 and 11 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 3 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	4	4	Ditto ditto.	
	Do.	1	2	1	Section 20, Rule 7 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	3	3	Section 20, Rule 12 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	3	1	Ditto ditto.	
	Do.	1	1	1	Section 21, Rule 4 of Special Rules.	
	Do.	1	1	...	Section 21, Rule 100 of Special Rules	
	Do.	1	1	...	Section 21, Rule 4 of Special Rules.	... Withdrawn. Accused not traceable.
	Do.	1	1	...	Ditto ditto.	

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

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1918—*concl.*

PROVINCES.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	REMARKS.
Bengal	Burdwan	1	1	1	Section 20, Rule 7 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 12 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	2	2	Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 20 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	Section 21, Rules 5, 7, 15 and 21 of the Special Rules.	
	Do.	1	1	...	Section 21, Rule 4 of the Special Rules.	} Withdrawn. Accused not traceable.
	Do.	1	1	...	Section 21, Rule 5 of the Special Rules.	
Burma	Tavoy	1	1	1	Section 20, Rule 14 of the Mines Act Rules Burma (1917).	
	Do.	1	1	1	Ditto ditto.	

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

**Statement No. 1.**

**List of Inspection Circles.**

No. 1 Circle.	No. 2 Circle.
<p>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 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.</p> <p>2. All mines in Baluchistan.</p> <p>3. All mines in the North-West Frontier Province.</p> <p>4. All mines in the Panjab.</p> <p>5. All mines in Rajputana.</p> <p>6. All mines in Assam.</p>	<p>1. All mines in Bengal.</p> <p>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.</p> <p>3. All mines in Bombay.</p> <p>4. All mines in the Central Provinces.</p> <p>5. All mines in Madras.</p> <p>6. All mines in Burma, other than those in the Tavoy District.</p>
<p>No. 3. Circle. All mines in the district of Tavoy, Lower Burma.</p>	

**Statement No. 2.**

**List of holders of certificates as managers of coal mines in British India.**

(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.
Habberjam, Charles . . . . .	211	8th August 1918	170	26th January 1915.

(b) Certificates of competency.

**FIRST CLASS.**

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Edwards, David Lewis . . . . .	101	16th April 1918.	
Roy, Moni Bhusan . . . . .	102	Ditto.	
O'Reilly, Denis Edward . . . . .	103	Ditto.	
Bhattaoharji, Jnanendra Nath . . . . .	104	Ditto.	
Lyon, Horace Albert . . . . .	105	Ditto.	
Judge, Peter . . . . .	106	Ditto.	
Thomson, Joseph . . . . .	107	Ditto.	
McGrath, Albert Edward . . . . .	108	Ditto.	
Bagchi, Beni Madhab Nath . . . . .	109	Ditto.	
Mitter, Atul Sasi . . . . .	110	Ditto.	

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

Statement No. 2—*contd.*

List of holders of certificates as managers of coal mines in British India—*contd.*

(b) Certificates of competency—*conold.*

SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Hogg, James Sneddon . . . . .	144	16th April 1918 . . . . .	} 1st Class candidates recommended for 2nd class certificates.
Ganguli, Bejoy Kumar . . . . .	145	Ditto . . . . .	
DeMenezes, Vincent . . . . .	146	Ditto.	
Fitzgerald, James . . . . .	147	Ditto.	
Chatterjee, Rakhal Chandra . . . . .	148	Ditto.	
Bose, Bhupendra Kumar . . . . .	149	Ditto.	
Bhattacharji, Indu Kiron . . . . .	150	Ditto.	
Dave, Harishankar Hirji . . . . .	151	Ditto.	
Mukherji, Santosh Kumar . . . . .	152	Ditto.	
DeSouza, Frank . . . . .	153	Ditto.	
Mukherji, Bhupendra Kumar . . . . .	154	Ditto.	
Paramanik, Jatindra Nath . . . . .	155	Ditto.	
Ghosh, Balai Charan . . . . .	156	Ditto.	
Guba, Manickia Chandra . . . . .	157	Ditto.	
Banerji, Lakshmiapati . . . . .	158	Ditto.	
Bhattacharji, Bhirendra Nath . . . . .	159	Ditto.	
Chatterji, Jitendra Nath . . . . .	160	Ditto.	
Jackson, Clarence Oliver . . . . .	161	Ditto.	
Chatterji, Debi Das . . . . .	162	Ditto.	
Rydquist, Frederick William . . . . .	163	Ditto.	
Deb, Srischandra . . . . .	164	Ditto.	
Baksi, Kali Krishna . . . . .	165	Ditto.	
Saranto, Narendra Nath . . . . .	166	Ditto.	
Bose, Sachindra Nath . . . . .	167	Ditto.	

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

Statement No. 2—*concl'd.*

List of holders of certificates as managers of coal mines in British India—*concl'd.*

(c) Certificates of service.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Porteous, William Bain . . . . .	142	18th February 1918.	
Ghose, Jasoda Dulal . . . . .	143	Ditto.	
Bennett, William Henry . . . . .	144	23rd April 1918.	
Simpson, Stanly Nevil . . . . .	145	Ditto.	
Mackenzie, John . . . . .	146	9th August 1918.	
Pearson, Charles . . . . .	147	Ditto.	
Ross, Ralph . . . . .	148	Ditto.	
Thompson, George . . . . .	149	Ditto.	
Banerji, Koolada Prosad . . . . .	150	22nd August 1918.	

(d) Certificates of service.

SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Mukherji, Ram Chandra . . . . .	102	19th February 1918.	
Whiffen, Percy Neville . . . . .	103	Ditto.	
Boswell, Wilfred Moore . . . . .	194	Ditto.	
Hyde, Joseph . . . . .	195	16th April 1918.	
Hazra Chowdhury, Kali Krishna . . . . .	196	Ditto.	
Guha, Jogesh Chandra . . . . .	197	22nd April 1918.	
Dutta, Sudbamoy . . . . .	198	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, 1901.

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



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

## Statement No. 4.

## SIBPUR COLLEGE.

## THE MINING CLASSES.

*Admissions to the Diploma Course in Mining at the Civil Engineering College, Sibpur.*

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 at a camp of mine surveying in the colliery districts.

Two classes of students are admitted—

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

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

Admissions are made as follows :—

*Regular students—*

A.—Through a special preparatory course of one year's duration at the Civil Engineering College. Admissions at end of January.

B.—Through the Sub-Overseer classes (a two years' course) at Sibpur, Dacca, Burdwan and Pubna, in Bengal; Bankipur and Ranchi in Bihar and Orissa. Admissions to Sub-Overseer class at the Civil Engineering College are made at the beginning of November.

*Special students—*

C.—Direct from the mines to the Mining classes without passing through either A or B. Admissions at the beginning of April.

*Admission qualifications to A, B and C—*

The passing of the Matriculation Examination, the Junior Cambridge Examination, the examination held at the end of the supplementary course for elementary European schools, or equivalent.

## Scholarships—

*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 „ 6 „

*For special students—*

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 Apprentice Department Circular.

B. HEATON,

*Principal, Civil Engineering College, Sibpur.*

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

## Statement No. 5.

## MINING INSTRUCTION IN BENGAL AND BIHAR AND ORISSA.

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

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

The principles of Coal Mining 1919-20, 1921-22, etc.

The principles of Mechanical Engineering of Coal Mines 1918-19, 1920-21, 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 1918-19.*

LECTURES on the Principles of Mechanical Engineering of Coal Mines will be delivered in English by Mr. H. C. Read, Mining Instructor, as follows:—

## JHARIA COAL-FIELD.

Jharia	... Lecture-room near Club	... Mondays	... 5-30 P.M.
Sijua	... Lecture-room near Station	... Tuesdays	... 5-0 "

## RANIGANJ COAL-FIELD.

Deshergarh	... Lecture-room near club	... Wednesdays	... 5-30 P.M.
Raniganj	... Railway Institute	... 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.

Rupees 100 monthly is offered in scholarships 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.

The following Sub-Committees have been appointed:—

## RANIGANJ COAL-FIELD.

<i>Deshergarh Centre.</i>	<i>Jamuria Centre.</i>	<i>Raniganj Centre.</i>
Mr. H. Lancaster, <i>Chairman.</i>	Mr. H. Lancaster,	Mr. H. Lancaster, <i>Chairman.</i>
„ Glen George (Deshergarh).	„ P. S. Keelan (Charanpur).	„ P. S. Keelan (Charanpur);
„ Geo. Miller (Sitarampur).	„ T. Samson (Charanpur).	„ A. T. Creet (Kalipahari).
„ F. Owen (Deshergarh).	„ R. Mitchell (Nandi).	„ W. J. Rees (Raniganj).
Babu M. N. Roy (Begunia).	„ W. S. Elphinstone (Asansol)	Babu Promotha Nath Hazra (Toposi).
„ P. C. Tarafdar (Mugma).	Babu Atul Shashi Mitra (Asansol).	„ Kali Kumar Mista (Searsole Raj Estate).
„ S. N. Ghosh (Barakar).		„ S. Chaudhuri (Jamehari, Raniganj).

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement No. 5—*contd.*

## JHARIA COAL-FIELD.

<i>Jharia Centre.</i>	<i>Sijua Centre.</i>
Mr. R. R. Simpson, <i>Chairman.</i>	Mr. R. R. Simpson, <i>Chairman.</i>
„ R. G. M. Bathgate (Jamadoba).	„ A. A. Agabeg (Sijua).
„ Kirk (Kustore).	„ R. Heron (Ekra Bansjora).
„ E. D. James (Lodna).	„ Starksfield (Bansjora).
„ R. Barrowman (Standard Coal Company, Jharia).	„ G. C. Leach (Sijua P. O.).
Babu Gobburdhan Das Manishankar (Jharia).	Babu Trikumdas Doyal (Bansjora).
„ Narendra Nath Sarkar (South Kujama, Jharia).	„ Basanta Kumar Roy (Kirkend).

Copies of the syllabus may be obtained from the Mining Instructor, Muslia, Asansol, or from

B. HEATON,

*Secretary, Mining Education Advisory Board,  
C. E. College, Sibpur Botanic Garden, P. O. Howrah.*

## MINING INSTRUCTION IN THE COAL-FIELDS OF BENGAL AND BIHAR AND ORISSA.

### *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 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-lamp; 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.

APPENDIX IV—*contd.*MISCELLANEOUS—*contd.*Statement No. 5—*concl'd.*

## MINING INSTRUCTION IN THE COAL-FIELDS OF BENGAL AND BIHAR AND ORISSA.

*Syllabus of the Course of Instruction—contd.*THE PRINCIPLES OF MECHANICAL ENGINEERING OF COAL MINES—*contd.*

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; overwinding 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 tramping; 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; keys; arrangements of roads on pit bank; tipplers; simple screening and sizing; railway sidings; aerial ropeways.

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

Adopted by the Mining Education Advisory Board at their meeting of 27th January 1917.

B. HEATON,

*Secretary.*

CIVIL ENGINEERING COLLEGE, SIBPUR.

## Statement No. 6.

No. 784b.

GOVERNMENT OF INDIA.

## DEPARTMENT OF COMMERCE AND INDUSTRY.

*Simla, the 10th August 1918.*

## NOTIFICATION.

*(Mines Regulations.)*

For the purposes of Rules 32 and 33 of the rules framed under Section 20 of the Indian Mines Act, 1901 (VIII of 1901), and published with Notification No. 2968-82, Geology and Minerals, dated the 21st April 1906, as subsequently amended by Notification No. 9709-131, Geology and Minerals, dated the 23rd October 1908, the Governor-General in Council has approved of the Leland Stanford Junior University, California, in respect of its Degree of Bachelor of Arts in Geology and Mining, with effect from the date of this Notification.

A. H. LEY,

*Secretary to the Government of India.*

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

## Statement No. 7.

*Notification.*

No. <sup>3770-Com.</sup> <sub>11761-M.</sub>, dated the <sup>28th</sup> <sub>23rd</sub> August 1918, of the Government of <sup>Bengal, Commerce</sup> <sub>Bihar and Orissa, Municipal</sub> Department.

In exercise of the powers conferred by Section 20 of the Indian Mines Act, 1901 (VIII of 1901) the <sup>Governor</sup> <sub>Lieutenant-Governor</sub> in Council is pleased to make the following rules for <sup>Bengal</sup> <sub>the whole of Bihar and Orissa</sub>

*Rule 1.*—For the purposes of these rules; the word “mine” shall have the same meaning as given to it by rule 27 of the rules published with the Government of India Notification No. 2958-82, dated the 21st April 1906, as subsequently amended.

*Rule 2.*—A competent person or persons appointed by the Owner, Agent or Manager for the purpose shall keep a correct record of the number of persons going below ground daily and returning from below ground daily, and if required by the manager, every person shall immediately before going below ground and after returning from below ground record his presence in accordance with a system approved by the Chief Inspector or an Inspector of Mines.

Provided that this rule shall not apply in the case of any person appointed to carry out duties of superintendence, management or control.

*Rule 3.*—Every side entrance to a mine from the surface, by which the mine can be entered on foot, which is regularly used as a travelling or haulage road, shall be provided with a gate, which shall be kept closed and locked when there are no persons underground in the mine. Such gate shall be so constructed as to prevent effectually, when closed, the entrance of persons into the mine by way of such travelling or haulage road.

*Rule 4.*—Every side entrance to a mine from the surface by which the mine can be entered on foot, which is not regularly used as a travelling or haulage road, shall be permanently closed or kept substantially fenced, across the whole width of the entrance. When an entrance is fenced, the fencing shall be so constructed as not to prevent egress in case of emergency.

## Statement No. 8.

## 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.