

No.183/61
October 7, 1961

Shri A.P.Veera Raghavan,
Under Secretary to the Government of India,
Ministry of Labour & Employment,
New Delhi.

Sub: Report of the Training Sub-committee
set up in pursuance of the recommen-
dations of the Industrial Committee
on Coal Mining (6th Session -21.2.59)

Dear Sir,

.....
Please refer to your letter No. 23/2/61-MI(i)
dated September 12, 1961 and the enclosures thereto.

We would be very glad to receive two more
copies of the report under reference.

Will you kindly send the same at an early
date and oblige ?

Yours faithfully,



For SECRETARY.

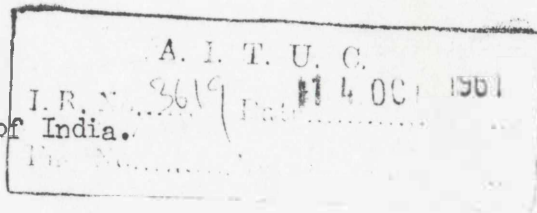
No.23/2/61-MI
GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND EMPLOYMENT

From

Shri A.P. Veera Raghavan,
Under Secretary to the Government of India.

To

The Secretary,
All India Trade Union Congress,
4, Ashok Road, New Delhi-1.



Dated, New Delhi, the 11th October, 1961.

Subject:- Supply of copies of the Report of Training Sub-Committee.

Dear Sir,

With reference to your letter No.183/61 dated the 7th Oct. 1961,
I am directed to forward herewith two copies of the report under reference.

Yours faithfully,

B. N. Tewari
11/10/61
(B.N. Tewari)
for Under Secretary.

*Sent to T.B.V.
Kalyan
16/10/61*

No.23/2/61-MI (i)
Government of India
Ministry of Labour & Employment

From

Shri A.P. Veera Raghavan,
Under Secretary to the Govt. of India.

To

As per list attached.

Dated New Delhi, the 12.9.61.

Subject: Report of the Training Sub-committee set up in pursuance of the recommendations of the Industrial Committee on Coal Mining (6th Session - 21.2.1959) -

Dear Sirs,

The Government of India had set-up a Sub-committee, as recommended by the Industrial Committee on Coal Mining in its 6th Session held on the 21st February, 1959, to examine the training scheme evolved for training all workers before employment in mines and for making arrangements thereof. The Sub-committee has submitted its first report (copy enclosed). I am to request that the comments of your organisation on the report may kindly be furnished to the Government of India as early as possible.

Yours faithfully,



(A.P. Veera Raghavan)
Under Secretary.

SPT
refd.
1.9.

*Show it to Govt. Secy. 2/9/61
& get his comment. The info.*

11. The General Secretary,
All India Trade Union Congress,
4, Ashoka Road, New Delhi.

A. I. T. U. C.
I.R. No. 3260 Date 9/9
Ref: ed no.

FIRST REPORT OF
THE MINES TRAINING SUB-COMMITTEE

(1.8.1961)

CONTENTS

SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS 1.- 14

I. INTRODUCTORY

Paragraphs
1-5

Back-ground	1
Appointment of Committee ..	2
Original Terms of Reference ..	3.1
Additional Terms of Reference ..	3.2
Work of Committee ..	4-5

II. GENERAL CONSIDERATIONS

6-7

III. OUTLINE OF THE TRAINING SCHEME

8-12

General Vocational Training ..	<u>10-11</u>
Training of Special Categories ..	12

IV. GENERAL VOCATIONAL TRAINING

13-25

Selection of Trainees.. ..	13-14
Theoretical & Gallery Training ..	15-17
Guided Practical Training ..	18-19
Trainers ..	20
Certification of Trainees ..	21
Stipend during Training ..	22
Reduced Training for	
Surface or Opencast work ..	23
Special Training for Gassy Mines ..	24
Refresher Courses ..	25

V. TRAINING OF SPECIAL CATEGORIES

26-35

Training in Track-laying ..	26-30
Training in Handling & using Explosives	31-33
Training in Gas-Testing ..	34.35

VI. CONCLUDING OBSERVATIONS

36-38

1st Annexure

	<u>Pages</u>
<u>APPENDIX A.</u> Model Course of Theoretical and Gallery Training.	18-19
<u>APPENDIX B.</u> Staff & Equipment for a Training Centre.	20
<u>APPENDIX C.</u> Model Course of Special Training for entrants to Gassy Mines.	21-22
<u>APPENDIX D.</u> Model Refresher Courses.	23
1. For Surface/Opencast workers	
2. Additional for Underground workers	
3. Additional for Gassy Mine workers	
<u>APPENDIX E.</u> Model Course of Training in Track-laying.	24
<u>APPENDIX F.</u> Model Course of lectures for Explosive Carriers etc.	25
<u>APPENDIX G.</u> Model Course of lectures on Shotfiring.	26
<u>APPENDIX H.</u> Model Course of Training in Gas-Testing etc.	27

2nd Annexure

TRAINING SCHEME FOR COAL MINE ENTRANTS (referred to the Sub-Committee in pursuance of a Recommendation of the Industrial Committee on Coal Mining made at its Sixth Session)	28-34
--	-------

3rd Annexure

IMA SCHEME FOR TRAINING NEW ENTRANTS TO COAL MINES	35-45
--	-------

SUMMARY OF OBSERVATIONS
AND RECOMMENDATIONS

1. Vocational training of mining personnel is essential in the interests of Safety in mines. (Paragraph 6)

Arrangements for training

2. Vocational training to coal-mine entrants should be imparted by the mine management concerned. (Paragraph 8.1)
3. Arrangements for training coal-mine entrants may be made individually or collectively. All collective arrangements should have prior approval of the Chief Inspector of Mines. (Paragraph 8.1)
4. All such training should be under the supervision of a Training Officer. The proposed National Mine Safety Council may be called upon to assist the Scheme by preparing model lectures for the guidance and use of Training Officers. (Paragraphs 8.2 and 8.3)
5. The Scheme shall not apply to members of supervisory staff. (Paragraph 8.4)

Outline of Training.

6. Training of raw hands for underground employment may consist of two weeks spent on theoretical and gallery training, followed by three weeks' training on actual operations. For employment on surface and in opencast mines, however, the training may be only of two weeks' duration in all. Underground entrants to gassy mines may on the other hand, be required to undergo an additional two weeks' course of training. During the training, trainees may be paid a suitable allowance of Rs.1.50 per day under training. (Paragraphs 10 and 22)

Trainers

7. The Guided Operation Training should be given under the direct charges of an experienced workman actually employed on productive work. The trainers themselves should first attend a suitable refresher course. A trainer may be paid a "training allowance" of 50nF. per day for every trainee attached to him. (Paragraphs 18 and 20)

Refresher Courses

8. Whenever any person returns to employment after a break of six months and whenever a mine-worker who has not undergone training under the Scheme changes his mine, he should be required to undergo a suitable refresher course. These courses should be so arranged that the person concerned can attend the same before or after his normal duty hours. (Paragraph 25)

Additional Training for work
of Special Categories:

9. Before appointment as a 'line mistri', every person should undergo an additional special course in track-laying which may be of two weeks' duration.

(Paragraphs
27 and 28)

10. The training of persons employed in handling and using explosives may be in two parts. The first part of this training, consisting of a series of six lectures and demonstrations, may be undergone by every explosive carrier before, or soon after, appointment as such. The second part of the training may be of two weeks' duration and may be given only to such persons as are likely to become eligible for appearing at the Shotfirer's Competency Examination within the next three months. Persons already working as shotfirers in the industry may also be required to undergo a special refresher course whenever they change their mine.

(Paragraphs
31 and 32)

11. The training centre of every gassy mine should be equipped with gas-testing equipment and other training aids. A gas-testing course of six lectures-demonstrations should be run; and should be undergone every year by all candidates for, and holders of, gas-testing certificates and, preferably, by as many employees as possible.

(Paragraph 34)

Inspection of Training Arrangements.

12. All training arrangements should be subject to scrutiny and inspection by the office of the Chief Inspector of Mines and, to enable the latter to do justice to this job, a 'training inspection' wing should be added to that office.

(Paragraphs
35.1 and 37)

Training of Mine Entrants in
Mines other than Coal Mines

13. Similar arrangements should simultaneously be made to impart training to workers in oil and metalliferous mines as well.

(Paragraph 38)

1st Report of
THE MINE TRAINING SUB-COMMITTEE

I. INTRODUCTORY

Back-ground

1. In a letter addressed to the Government of India in January 1957, the Chief Inspector of Mines pointed out the great and urgent need for training all workers before employment in mines, and suggested that arrangements for such training may be made immediately. In July 1957, he submitted a detailed training scheme in this connection to the Government of India. After considerable discussion, the revised scheme (which is reproduced as the 2nd Annexure) was put up for consideration to the Industrial Committee on Coal Mining at its 6th Session held at New Delhi on 21st February, 1959. The Industrial Committee recommended that the scheme may be referred to a Sub-Committee for examination and recommendations.

Appointment of Committee

2.1 Accordingly, vide their letter No. MI-27(3)/59 dated 15th September 1959 addressed to the Chief Inspector of Mines in India, the Government of India in the Ministry of Labour and Employment set up a Sub-Committee, with the following composition, to examine the Training Scheme and make recommendations:

Chairman

Shri S.S. Grewal, Chief Inspector of Mines in India, Dhanbad.

Members

- i) Shri A. B. Guha, Coal Mining Adviser Ministry of Steel, Mines and Fuel, (Department of Mines and Fuel), New Delhi.
- ii) Shri I.M. Thapar, Indian Mining Federation, 135, Canning Street, Calcutta.
- iii) Shri D.N. Vashisht, Colliery Agent, Bird & Co.(P) Ltd., Chief Mining Engineer's Office, P.O. Sijua, District Dhanbad.
- iv) Shri B.P. Sinha, Vice-President, Indian National Mine Workers' Federation, Gandhi Road, P.O. Dhanbad(Bihar), and
- v) Shri Radha Krishna Singh, Vice-President, Indian National Mine Workers' Federation, (Opposite Imperial Bank), Dhanbad (Bihar).

The Chairman appointed Shri G.S. Marwaha, Regional Inspector of Mines, to act as Secretary to the Committee.

2.2 On the retirement of Shri S.S. Grewal, the new Chief Inspector of Mines, Shri G. S. Jabbi became Chairman of the Sub-Committee on 14th April, 1961.

Original Terms of Reference

3.1 Besides examining the Training Scheme referred to it, the Sub-Committee was also required to examine the following recommendations of the Safety in Mines Conference (1958-59):

- (a) "Arrangements should be made for training track layers"; and

- (b) "Persons to be appointed as shotfirers should be intensively trained, so that safety habits can be ingrained in their very nature".

Additional Terms of Reference

3.2 Vide its letter No.MI-27(3)/59, dated 27th January, 1960 addressed to the Chairman, the Government of India requested the Sub-Committee to examine the following other recommendations of the Safety in Mines Conference (1958-59) relating to "Education and Training":

"The Committee is of the view that unless competent and dependable workmen, operators and officials are available in mines, no programme of promotion of safety can make any headway. It is, therefore, necessary that all new entrants undergo training to acquaint themselves with the nature of the work they are going to do, with safety principles and how to apply them. There is also need for providing training facilities for technicians, supervisory staff and mining engineers. For this purpose the Committee recommends that a sub-committee be set up at an early date to go into the entire question of training schemes, the nature of training to be imparted and the personnel who would receive this training. The proposed sub-committee should take into account the work done in this field by a committee of the Coal Council.

The Committee also endorses the recommendation contained in the Draft Report that Accident Prevention Courses for all workers be arranged at intervals and suggested that details in this regard be worked out by the proposed sub-committee".

Work of the Committee

4.1 The Committee held its first meeting on 21st October 1959, when it considered the Scheme for Training Mine Entrants submitted to it by the Government and also draft schemes, prepared by the Secretary, for training Track layers and Shotfirers. The Sub-Committee also decided that training of workers in gas-testing was also very important and should be included in the Scheme. A scheme of training mine workers drawn up by the Indian Mining Association in the meanwhile (reproduced as 3rd Annexure) was also discussed. The original training scheme was generally approved, and intimation to this effect was sent to the Government of India on 23rd November 1959.

4.2 The scheme as tentatively approved envisaged the starting of several Centrally managed Mining Training Institutes in the coalfields, using the buildings of Miners' Institutes for the purpose. It was, however, later on found from a discussion with the Coal Mines Welfare Commissioner that these buildings could not be made available for the purpose. The matter was therefore reconsidered during the 2nd meeting of the sub-committee held on 25th March, 1960 when it was decided to review the whole matter in view of this fundamental change and to draft out the training scheme on lines of the IMA Scheme i.e. envisaging the training of mine workers at the mine level. A small sub-committee consisting of the Secretary and Shri D.N. Vashist was appointed for the purpose.

4.3 Three further meetings of the main Sub-Committee were held to consider the scheme prepared by the small sub-committee; and this Report on the Original Terms of Reference was approved and signed at the fifth meeting of the Committee held on 1st August 1961. Shri A. B. Guha did not attend any meeting of the Committee, and the Report is therefore not signed by him.

5. In the meanwhile, the Secretary has written to various educational authorities in the country concerned with the education and training of mining personnel, and a very large volume of information has been collected. The Sub-Committee hopes to be able to consider this data during the next few months, and submit its 2nd Report (on the Additional Terms of Reference) by the end of the year.

II. GENERAL CONSIDERATIONS

6. The problem of safety in mines in this country has, during the past few years, been receiving considerable attention from all parties concerned, namely, the Government, the labour and the management. For achieving better standards of safety in mines new regulations and rules have been framed on the basis of the vast amount of experience of working mines in this country for over 60 years, and keeping in view the new developments in mining methods all over the world as well as the latest mining safety legislation of foreign countries. The enforcement of safety legislation is also being tightened. No amount of safety legislation, however, can be really effective unless due consideration is paid to the part played by the 'human element' in the occurrence of accidents - particularly in an industry like mining where the labour force plays a much more intimate part in productive processes than in any other.

In order to achieve the ambitious production targets of coal in the Third and subsequent Five-Year Plan, it would be necessary to mechanise the mines and to proceed to greater depths. These factors further necessitate urgent attention being paid to training of mining personnel.

7. In this connection, the Committee can do no better than reproduce the following extract relating to "Vocational Training of Workmen" from the 'draft Report of the Safety in Mines Conference (1958-59):

"219. The most important (especially from safety point of view) but unfortunately the most neglected, aspect in the mining industry in India is the vocational training of workmen. The mining labour here consists mostly of raw workers recruited from villages and employed below-ground in productive capacities without having undergone any vocational training to acquaint themselves with the elements of their work or with safety principles. It is well known that new entrants are more prone to accidents than experienced workers. In all industrially-developed countries, the importance of initial training of all new entrants (including miners) in mines has been recognised and such training (extending over a 1-to-4 year period for youths and 2 to 3 months for adults) has been made a statutory requirement.

220. The I.L.O. Committee on Coal Mines has also stressed in its Report (1956) on Safety in Coal Mines, that 'vocational training of mine workers is one of the most fundamental factors in the fight for accident prevention', and has added that 'whatever method of training is used, due account should be taken of safety requirements. A knowledge of the hazards inherent in mining work and of the right methods of preventing them is part of the part of mining'. Such a training would also help in producing more skilled and enlightened workmen.

221. Such lack of vocational training in an industry which is several times more hazardous than any other, is most regrettable. The urgency of the problem has become all the more greater due to the additional hazards introduced by deep mining and the greater use of machinery and explosives".

III. OUTLINE OF THE SCHEME

8.1 Vocational training to coal-mine entrants (including miners, loaders, trammers, timber and line mazdoors, and all other mazdoors and helpers) should be imparted by the mine management concerned. For this purpose, every mine is expected to make its own arrangements. This may be done by them either individually or collectively. All collective arrangements should have prior approval of the Chief Inspector of Mines. As this training is to be given under a specific provision of the Mines Act, all training arrangements would naturally be subject to scrutiny and inspection by the Office of the Chief Inspector of Mines.

8.2 The training at the mine level should be under the supervision of a suitably qualified and experienced Training Officer - who should be a person of good personality with an aptitude for handling men and for teaching. In the larger mines and at the collective training centres, Training Officers should work on a full-time basis. In other mines, the Chief Inspector of Mines may permit the appointment of a part-time Training Officer.

8.3 The proposed National Mines Safety Council may be called upon to assist the training scheme by preparing model lecture courses for the guidance and use of training officers.

9. This scheme shall not apply to managers, assistant managers, surveyors, engineers, overmen, sirdars and other members of supervisory staff (or entrants to these cadres). The scheme shall also not apply to mechanics, electricians and operators of mining machinery if they have undergone some other approved course of training at a mine mechanisation training centre. Mechanics and electricians etc. trained at general polytechnics would, however, come under the purview of the scheme.

General Vocational Training

10. Training of raw hands for under-ground employment may consist of two weeks spent on theoretical and gallery training, followed by three weeks' training on actual operations. For Employment on surface and in opencast mines, however, training may be of only two weeks' duration, including three days' theoretical training. Whenever a person who has experience only on surface or of opencast working, desires to obtain employment belowground he should be required to undergo the balance of the five weeks' full course. Underground entrants to gassy mines may be required to undergo, in addition to the five weeks' training mentioned above, a special two-week course of training, consisting of lectures, demonstrations, visits etc. dealing with the dangers of inflammable gas and methods of dealing with the same. Whenever a worker from a non-gassy mine wants employment underground in a gassy mine, he should also be required to undergo this additional training again.

11. Whenever any person returns to employment in a mine after a break of six months and whenever a mine-worker who has not undergone the necessary training under this scheme changes his mine, he should be required to undergo a refresher course, consisting mainly of theoretical safety lectures. These courses should be so arranged that the persons concerned can attend the same before or after their normal working hours.

Training of Special Categories.

12. Trainee track-layers and shotfirers should, in addition to the basic training required under para 10, undergo special courses of training. Gas-testing trainees should also, in addition to the basic training, undergo a special course of lectures and demonstrations etc.

.....

IV. GENERAL VOCATIONAL TRAINING

Selection of Trainees.

13.1 Where selection of new entrants to a mine is not already being made through a regular system of interview (by the manager personally or by a suitable Board constituted by the management), such a system should be introduced. Since the training would last several weeks, the manager of every mine will have to assess his requirements of different category of personnel well in advance.

13.2 At the interview of prospective candidates, the first point to be cleared up would be whether or not the individual has worked in any mine within the previous six months. If he claims to have worked in a mine during this period, in any capacity, full details about the experience should be obtained from him and then verified from the mine concerned. For this purpose, a proforma may be drawn up.

13.3 Except where the selected individual has worked in a mine of same category and in a similar capacity during the previous six months (in which case, he will undergo only the relevant refresher course detailed in para 25 below), every candidate for employment should undergo the complete course of training outlined in this chapter.

14. To make the scheme a success, it would be necessary to document every workman employed in mines.

Theoretical and Gallery Training

15. Each batch of new recruits, which may normally consist of not more than 20 persons, will be placed in charge of the Training Officer.

16.1 The theoretical and gallery training (of two weeks' duration) may begin with an introductory lecture on the various operations involved in the winning of coal from the face and its transportation to the surface, followed by a tour of surface installations and under-ground working. During this tour, sources of dangers should be pointed out and safe practices indicated. Two more days may be spent on work on the surface - training after which the trainees may split into those for surface work and those training for under-ground work.

16.2 The underground trainees may be then be sent to an underground training gallery (maintained for the purpose) where they may first be shown the various operations being carried out. Later on, they may be called upon to assist in these operations themselves. Though many of the trainees may not be destined to become, say, trammers or coal-face workers, it would be of advantage to every trainees to have some personal knowledge of all these operations. At the beginning and/or end of each day, trainees may be explained the sources of danger in each operation and how to avoid them.

16.3 This part of the training should be wound up with a general lecture followed by a discussion when questions should be invited from trainees, and fully answered. The preliminary lecture, the first tour of the mine, the daily lectures and the final discussion should be given/carried out by the Training Officer himself.

17. Appendix A gives a model course of theoretical and gallery training. The requirements in respect of equipment and staff for a typical Training Centre are given in Appendix B.

Guided Operational Training

18.1 After completion of the theoretical and gallery training, every successful trainee should be put under the charge of an experienced workman actually employed on productive work (hereinafter called a 'trainer' -- see para 20 below) of the appropriate category for further training and experience on actual productive work. Every trainer will be personally responsible for the trainee(s) attached to him during the whole of the working shift. The trainees shall travel to and from work in the mine with the trainer to whom they are attached. At the work-site, they shall work under the direct and personal supervision of the trainer who, while carrying out his own normal work, will also see that the trainees under him gradually pick up work (by actually carrying out the various tasks given to them), understand the dangers inherent in the operation and develop safe habits.

18.2 During this phase of training also, the attention of trainees should be constantly drawn, by the trainer concerned, to necessary safety measures such as:

- seeing that the cage gates are properly closed after entering the same;
- Precautionary measures while travelling on haulage roadways etc;
- not to loiter or rest near curves on haulage tracks;
- keeping away from fenced-off areas;
- keeping away from moving machinery such as conveyors, etc.

In the case of trainees who work at the coal face etc., their special attention should be drawn to the danger from falls of roof and sides, and to precautions adopted during setting or withdrawal of timber and use of explosives.

18.3 The trainee should also be shown the quickest and safety routes of egress from sections in which he is likely to work, for use in the event of an emergency.

19. The progress of the trainees at this stage also should be under the close supervision of the Training Officer who should satisfy himself that, on the one hand, trainees are not left to sit idle doing nothing (due to the pre-occupation of trainer with his own work) or, on the other hand, the trainer does not try and get too much work out of the trainee(s) attached to him (at the cost of their ability to acclimatise themselves properly to conditions of work in a pit).

Trainers

20.1 Trainers should be selected from amongst skilled and experienced workmen who are considered suitable to train one or more new entrants in actual productive work. Such trainers may be drawn from:

- (i) Working miners'/loaders' Sirdars. (These men supervise gangs of miners/loaders under them and either cut/load coal along with their men or, at the very least, spend a full shift under-ground supervising the work of their men).

- (ii) Dressers.
- (iii) Working Trammers' Sirdars.
- (iv) Timber/Line Mistries.
- (v) Electricians and Fitters.
- (vi) Coal-cutting Machine Drivers; Drillers.
- (vii) Tyndal Jamadars etc.
- (viii) Masons.

No person may be employed as a trainer unless he has himself attended a refresher course of six safety lectures designed for the purpose.

20.2 Every trainer should be paid a 'training allowance' of 50 nP. (all-inclusive) per day for every trainee attached to him.

Certification of Trainees

21.1 At the end of the guided operational training, the Training Officer should discuss, with the trainer concerned, the progress made by every trainee attached to the latter. He should then make out a brief report in respect of his previous experience (if any), the name of the trainer to whom he was attached, and adding his comments as to whether or not the trainee has made satisfactory progress.

/of each
trainee,
giving
full
particulars
of the
trainee,

21.2 The Training Officer's report should be submitted to the manager of the colliery concerned, who may then interview the trainee, or get him interviewed by an experienced Assistant Manager, if any. The interview should consist of questions put to the trainee with a view to find out whether or not he has actually grasped the fundamentals of how to avoid accidents, and whether or not he has benefited from the training undergone by him.

21.3 If the manager is not satisfied with the performance of the trainee, he may either discharge the latter or, if he thinks fit, send him back for a further period of training.

21.4 Every person who has completed his course of training as aforesaid to the satisfaction of the manager, may be granted a certificate in a standard form. The Certificate should carry suitable identification (photograph and thumb impression etc.) of the holder. Every such person shall become eligible for absorption in any suitable vacancy that may exist in the mine.

Payment of Stipend During Training

22. Every new entrant should be given a suitable allowance; of Rs. 1.50 per day (all-inclusive), while he is under training. This stipend is not to be considered as a wage; and it should be clearly understood that, during the period of training, the trainee is a learner on trial and is not a workman, and does not have any rights of workman.

Reduced Training for surface or opencast work

23. The full training described in paragraphs 16 to 19 above is necessary only for a candidate for employment below-ground. As mentioned in paragraph 10 above, candidate for surface or quarry employment need undergo only a two-week course of training out of which the first three days may be spent on an introductory lecture, a tour round the surface and two more lectures detailing the sources of dangers in various operations in mines and the precautionary measures necessary.

Special training for gassy mines

24. Before his first employment belowground in a gassy mine, every person should, in addition to the training specified in paras 16 to 19 above, undergo a special course of lectures, demonstrations and visits etc. lasting two weeks (on the lines of the Model Course detailed in Appendix C). In this course, the candidate should be given an understanding of how inflammable gas is given off, the dangers that go with the presence of such gas, how the presence of inflammable gas can be found out, and the precautionary measures necessary. In particular, he should be explained the necessity of:-

- properly looking after his safety lamp;
- avoiding smoking below-ground;
- maintaining the brattices etc. in good order; and
- keeping the ventilation doors etc. closed.

This course should be conducted personally by the Training Officers.

Refresher Courses

25.1 As mentioned in para 11 above, whenever any person returns to employment in a mine after a break of six months and whenever a miner-worker who has not undergone the necessary training under this scheme changes his mine, he, too should be required to undergo a suitable refresher course within six weeks of rejoining duty or change, as the case may be. A change of a district or of a seam or of a pit in the same mine would not be taken as a change of a mine for this purpose. The refresher course may consist of, say, three safety lectures and demonstrations for underground workers plus six more lectures and demonstrations for workers in gassy mines. Model courses are given in Appendix D.

surface workers plus six lectures and demonstrations for

25.2 Mechanics, electricians, etc. trained at non-mining polytechnics should also be required to under-go such refresher courses.

25.3 These courses should be so arranged that the persons concerned can attend the same before or after their normal duty hours.

-.-.-.-.-.-

V. TRAINING OF SPECIAL CATEGORIES

Training in Track-laying

26.1 It is generally appreciated that, except for a few notable exceptions, the standard of track construction in our mines is poor - resulting in very frequent derailments. Derailments not only result in loss of productivity but also introduce an avoidable source of hazard. In 1960, of the 35 fatal and 311 serious accidents due to haulage, 2 fatal and 53 serious accidents were classified as "following derailment, and reilment of tubs", constituting the largest single cause.

26.2 High standard of tracks is also required for the safer and economic operation of modern haulage techniques, which are likely to be adopted more and more in the coming years to achieve the high targets wset up for the production of coal under the various Five-Year Plans.

27.1 At present, facilities for training of track-layers are practically non-existent in the coal mining industry. In the interest of safer and efficient operation of various track-haulage systems, therefore, it is essential that training for track-layers should also be given at the Training Centres. Before appointment as line mistri, either above or belowground, in a mine, every person should, unless he has already undergone such training, undergo a special course of track-laying in addition to the full 5-week course of general Vocational Training or refreshercourse, as the case may be. As requirements for this category of work may not be large, such a course may be run at the training centre only when required. It may also be permissible for for any mine management to get its track-laying persons trained at a training centre other than its own.

28.1 To start with, the services of a qualified and experienced 'plate-layer' may be obtained for imparting training in track-laying. This could probably be arranged through the proposed National Mine Safety Council. Later on, trained mistries may be appointed for the purpose.

28.2 The course may be of two week's duration on lines of the model course laid out in Appendix. An inclined plane (preferably an underground gallery) with provision for laying curves, points and crossings etc. would be required for the purpose.

Training in handling and using explosives.

29 While handling and using explosives in mines, a large number of accidents involving loss of life and serious bodily injuries occur every year. In 1960, 17 persons were killed and 96 seriously injured due to use of explosives. Shot-firing operations in gassy mines require special attention as even a minor contravention of the safety provisions may well result in an explosive involving heavy loss of life and property. In most of these cases, the accident takes place due to the shotfirer having failed to adopt one or more safety principles specifically laid down in the Regulations. It is generally accepted that most shotfiring accidents are of the avoidable type: no effort should therefore be spared to eliminate them. In calculating safety consciousness amongst persons employed in handling and using explosives would go a long way to meet this object. For this purpose, it is necessary to develop a training course to cover the requirements of both gassy and non-gassy mines.

30.1 Under the Coal Mines Regulations, no person can be employed as a shotfirer in a mine unless he is the holder of a manager's, overman's, sirdar's or shotfirer's certificate granted by the Board of Examiners appointed under the Regulations. In gassy mines, the shotfirer must hold at least a sirdar's certificate together with a gas-testing certificate. In non-gassy mines, however, persons holding shotfirer's certificates are usually appointed to work as shotfirers.

30.2 A candidate for an examination for the shotfirer's certificate is required, under the Regulations, to have had at least two years' practical experience/training of an approved type in a coal mine - out of which at least six months should have been spent on shotfiring.

30.3 At present, most of the candidates who appear at this examination are illiterate. Although statutorily they are required to have undergone the stipulated period of practical experience/training before they can be admitted at the examination, it is well known that no proper training is at present imparted to them other than working as shotfiring mazdoors/helpers etc. As a result, the general standard of experience obtained and proficiency attained is rather poor, to put it mildly. The candidates hardly possess any knowledge about the various hazards inherent in the use of explosives and, therefore, their safety habits leave much to be desired. It is necessary to remedy this by having adequate facilities for training training shot-firers and shotfiring helpers.

31.1 The training of persons employed in handling and using explosives may be in two parts. The first part of training, consisting of a series of six lectures and demonstration on lines indicated in Appendix F, may be undergone by every explosive carrier either before or soon after appointment as such. This part of the training is designed only to apprise these workers of the dangers involved in handling different types of explosives and explosive materials, and does not entitle them to fire shots.

31.2 The second part of the training may be of two weeks' duration (on lines of the model course laid out in Appendix G) and may be given only to such persons who are likely to become eligible for appearing at the Shotfirer's Competency examination within the next three months.

32. This training should be given by the Training Officer himself, with the assistance of a qualified and practising shotfirer. It may be so arranged that trainees can attend the course before for after their hours of duty.

33. Persons already working as shotfirers in the industry may also be required to undergo this course whenever they change their mine. This course may also be required to be undertaken by every person who, though originally trained, has not worked as a shotfirer for a continuous period of six months or more, but wishes to be re-employed in such a capacity.

Training in Gas-testing

34.1 The Coal Mines Regulations require the following categories of official/workers to hold a gas-testing certificate:

- (i) Mining Sirdars.
- (ii) Operators of all electrically-operated machinery belowground.

(iii) Persons employed to clean and service flame safety lamps in the safety lamp cabin.

(iv) Persons employed to examine flame safety lamps before issue and at the pit-month.

The importance of the real competency of these persons to test for gas cannot be over-emphasized, for on this competency depends the life of every person employed in a gassy mine.

34.2 The Safety in Mines Conference (1958-59) recommended that, in addition, at least one face worker out of every ten in gassy mines should hold this certificate. As the gas-testing certificate has to be renewed at regular statutory intervals (3 years at present - to be extended to 5 years), it may be seen that even in a relatively small (gassy) mine producing only about 5,000 tons of coal per month, about 60-75 workers/officials should hold the gas-testing certificate, so that 12-15 persons would require renewal of the same every year.

34.3. In fact it would be advisable for all face workers to be able to test for gas, and for every holder of a gas-testing certificate to refresh his knowledge every year. It is therefore necessary that the training centre of every gassy mine should be equipped with a gas-testing apparatus and other training aids..

35. The gas-testing course may consist of a series of six lectures and demonstrations of the lines indicated in Appendix H. As most workers in a gassy mine are expected to have undergone the two-week orientation course for gassy mine entrants, this course would be of the nature of an advanced refresher course. The course should be conducted by the Training Officer personally. The course should be so arranged that trainees can attend the same before or after their hours of duty.

-.-.-.-.-

CONCLUDING OBSERVATIONS

36. Though the reference to the Sub-Committee was in respect of training of new mine entrants only, the sub-committee is of the considered view that training only the new entrants is not enough but that all working mine-workers should also undergo suitable refresher courses. With this object in view, the sub-committee has recommended at appropriate places (Paras 25 and 33) that, at the time of changing their mine or of resuming work in a mine after a break, mine-workers should be required to undergo such a refresh course. The proposed National Mine Safety Council would, no doubt, arrange for safety lecture etc. for the remaining workers - i. e. those already in employment and and who are not required to undergo any refresher course etc. under this scheme.

37. The scheme involving, as it does, training at the mine level, envisages the opening of hundreds of Mine Training Centres all over the country. There would naturally be such a large variety of factors involved that a very strict watch on the training standards would have to be maintained by the Mines Inspectorate. To enable the Inspectorate to do justice to the job, it would perhaps be necessary for it to have a training wing on lines of the arrangements in the U.K. Department of Mines.

38. The Sub-Committee also feels that though, resulting from its terms of reference, this Report is confined to training in the Coal Mining Industry only similar arrangements should simultaneously be made to impart training to workers in mines other than coal.

Sd/- 1/8/61

G. S. Jabbi, Chairman

Sd/-

for I.M. Thapar, Member

Sd/-

D.N. Vashist, Member

Sd/-

B.P. Sinha, Member

Sd/-

R. K. Singh, Member

G. S. Marwaha, Secretary

Dated, Dhan-bad, the 1st August 1961.

MODEL COURSE OF
Theoretical and Gallery Training

1st Day (Surface)

Talk Organisation, time keeping, the need for discipline and punctuality, and other matters of general interest.

Visit Attendance Room, Pit head bath, Canteen, Rest Shelters, Creche.

2nd Day(Surface)

Talk Colliery Rules and Standing Orders etc., Safety in the vicinity of machinery.

Visit Colliery Tramways and sidings, Haulage Room, Winding Room, Boilers, Electrical Gear Workshop.

3rd Day(Surface)

Talk Benching in Quarries. Dressing of over-hangs. Fencings, First Aid and Hygiene.

Visit Quarries. Medical Centres.

Practical work Tub manipulation, coupling, tramping, lockering and re-railing of tubs etc.

4th Day

Talk Methods of Transport belowground, signalling, man-holes and other safety appliances on haulage roads.

Visit Underground - pit bottom, travelling road, second outlet, haulage and tramping roads, stations and fencings belowground.

Practical work Tub manipulation, coupling, tramping, lockering and re-railing of tubs etc. and signalling.

5th and 6th Day

Talk Coal face work, roof control, testing of roof, support regulations. First Aid and Hygiene.

Visit Underground working faces, underground latrines, first aid stations.

Practical work Prop setting, chock building and withdrawal.

7th Day

Talk Ventilation, lighting.

Visit under-ground for Ventilation and lighting devices - Fan House, air crossings, stoppings, Regulator and doors etc.

Practical work Erecting brattice.
Ventilation of blind ends.

8th Day

Talk Shotfiring and Safety Regulations.

Visit under-ground for Practical demonstration of taking shelter etc.

Practical work Building of sand-bag stoppings.

9th Day

Talk Causes and prevention of fires underground; noxious gases - their occurrence and detection; care of lamps.

Visit under-ground for Practical demonstration of fire fighting devices, and detection of noxious gases.

10th Day

Talk Legislation and Duties of Work persons.

Visit under-ground for 'What's wrong'

Practical work Pipe laying and track laying.

11th Day

Talk Mine gases (Particularly CO , CO_2 , CH_4) and dangers there-from. Testing for same. General revision.

Practical work Cleaning up of galleries.

12th Day

Talk Mine officials and their duties.

Oral Test.

-.-.-. .

Training Centre

THESE ARE THE MINIMUM REQUIREMENTS AND, FOR LARGER MINES AND BIGGER COLLECTIVE TRAINING CENTRES, STAFF AND OTHER REQUIREMENTS WOULD BE CORRESPONDINGLY HIGHER

A. Staff

- 1. One Training Officer In mines having an average daily employment of 1000 or more in case of gassy mines and 1750 or more in other mines, the Training Officer should be a person holding at least the 2nd Class Manager's Certificate of Competency working on a full-time basis.

The Training Officer in smaller mines (employing down to 500 or more persons in case of gassy mines and 875 or more persons in case of other mines) should also hold similar qualifications but two such mines may be permitted by the Chief Inspector of Mines to have collective Training Arrangements.

In still smaller mines, the Training Officer may be a suitable Person holding the Overman's Certificate, and he may work on whole-time or part-time basis depending upon the workload and as permitted by the Chief Inspector of Mines.

- 2. Practical Demonstrations could be given and practical work supervised on a part-time basis, by experienced and otherwise suitable persons employed on work of timbering, track-laying, tramming work etc., working on part-time basis.
- 3. One Mazdoor)
- 4. One Clerk) Part-time or full-time, depending upon requirements.

B. Buildings and Equipment etc.

- 1. An Office Room for the Training Officer and his Clerk, with necessary Office furniture and equipment.
- 2. A Lecture hall, with charts, plans, drawings, models etc.
- 2.A. In Gassy mines, also a dark-room with gas-testing demonstration apparatus.
- 3. An underground section (or collection of galleries) where trainees could practice timbering, bratticing, tramming etc. - with necessary tools and material.

A disused set of workings belowground would be best for the purpose. If this cannot be arranged, an underground gallery could be simulated on the surface. This, however, would be a very costly alternative.

Model Course of special additional training for entrants to gassy mines.

1st Day

- Talk Danger from inflammable gas. Effects of inflammable gas in different percentages. Gas Caps.
- Demonstration Gas caps.
- Visit Visit to Safety lamp cabin to see how lamps are cleaned etc.

2nd Day

- Talk Difference between combustion and explosion. After-damp; its effects.
- Demonstration Difference between combustion and explosion.
- Visit Visit to Safety lamp cabin to study construction of Safety lamp.

3rd Day

- Talk Principal of construction of flame safety lamps and of flame-proof electrical equipment.
- Demonstration Effect of wire gauze on flame.
- Visit Visit to workshop to see FLP equipment.

4th Day

- Talk Methods of Testing for inflammable gas with flame safety lamp.
- Practical work Testing for gas.

5th Day

- Talk Duties of workers in gassy mines and where inflammable gas exists. Dangers of Smoking. Contrabands.
- Visit Visit to lamp cabin (to see arrangements for checking lamps before issue and after receipt) and to pit top (to see arrangements for checking safety lamps and searching for contrabands).
- Practical work Cleaning and assembling Safety lamps.

6th Day

- Talk Assembly of Flame Safety Lamps. Care of safety lamps during use. Dangers of opening or tampering with safety lamps.
- Practical work Cleaning and Assembling safety lamps.

7th Day

- Talk Occurrence of inflammable gas. Methods of removing gas. Necessity for good ventilation at the face. Ventilation devices.
- Visit Surface & Underground visit to see ventilation devices.
- Practical work Erection of brattices Ventilation of blind ends.

8th & 9th Days

Talk

Explosion danger from coal dust.
Methods of suppressing dust.
Water Sprays. Cleaning and stone-dusting.

Visit

Underground visit to see dust
suppression arrangements and measures.

10th & 11th Days

Talk

Dangers of shotfiring in gassy mines.
Precautions.

Visit.

Underground visit to see shotfiring.

12th Day

General Revision.

Oral Test.

Presentation of Certificates
to successful candidates.

Model

REFRESHER COURSES

1. FOR SURFACE/OPENCAST WORKERS

- Talk 1 Mine Organisation. Time keeping.
Need for discipline and Punctuality.
- Talk 2 Colliery Rules and Standing Orders.
Safety in the vicinity of Machinery.
- Talk 3 Benching in quarries. Dressing of Over-
hangs. Fencing. First Aid and Hygiene.

2. ADDITIONAL FOR UNDERGROUND WORKERS

- Talk 4 Dangers from haulage. Manholes and other
safety appliances. Signalling.
- Talk 5 Testing of Roof. Dressing of Roof and over-
hangs. Supports. Checks, bars and props.
- Talk 6 Ventilation. Control devices. Danger from
old workings. Causes and prevention of fires,
Noxious gases.
- Talk 7 Dangers of shotfiring. Safety precautions.
- Talk 8 Legislation. Duties of Workmen. Fencings.
- Talk 9 General Revision and discussion.

3. ADDITIONAL FOR GASSY MINE WORKERS

- Talk 10 Occurrence of inflammable gas. Danger from inflam-
mable gas. Combustion and explosion. After-damp;
its effects.
- Talk 11 Principle of construction of flame safety lamps
and of FLP equipment. Gas Caps. Method of testing
for gas.
- Talk 12 Duties of workers where inflammable gas exists.
Contrabands. Dangers of tampering with safety
lamps. Methods of removing gas. Necessity of
good ventilation at the face.
- Talk 13 Explosion-danger from coal dust.
Methods of suppressing dust.
- Talk 14 Dangers of Shotfiring in gassy mines. Precautions.
- Talk 15 General Revision and Discussion.

Model Course of Training in
Track-laying

- 1st Day General Talk on need for proper track-laying, different types of haulages in mines and track standars for each type. Tools required for the work.
Practical handling of tools. Visit to different haulage-sites, if possible.
- 2nd Day Talk One on Materials for Track-laying i.e. Rails, Sleepers, Dog Nails, Fish-plates, Fish-bolts, Ballast, Chair pieces etc.
Practical handling of different track laying material.
Talk Two on material quantities.
- 3rd Day Talk on methods of Laying Single and Double Track. Ballasting.
Practical laying of single & Double Track.
- 4th Day Talk on Laying of Curved Tracks, Radius of Curves, Bending of Rails, Tools for bending Rails.
Practical bending of Rails
- 5th Day Talk on Super elevation for curves, Widening of the gange at curves. Methods of Laying.
Practical laying of curved single track.
- 6th Day Talk on Reverse and Vertical Curves. Friction and vertical rollers etc. Revision of Curve-laying.
Practical laying of Curved Double Track.
- 7th Day Talk on Points, Design of Switches, Method of laying.
Practical laying of Crossings.
- 8th Day Talk on Crossings; Angel of Crossing. Method of laying.
Practical laying of Crossings.
- 9th Day Talk on 3-Rail Track; its uses. Method of Laying.
Practical laying of 3-Rail Track.
- 10th Day Talk on De-Railers, Re-Railers, Jazz Rails etc. Other special track equipment. Their laying and use.
Practical laying of special track equipment.
- 11th Day Talk on Inspection & Maintenance. General Revision.
Practical hints on Inspection and Maintenance.
- 12th Day General Revision. Discussions.
Presentation of Certificates to successful candidates.

Model course of Lectures and demonstration
for Explosive Carriers etc.

- 1st Day What is an Explosive? General composition of Explosives. Difference between Low and High explosives. Low Explosives and their firing. Safety fuse and its burning speed.
- 2nd Day High Explosives. Their detonation. Electric shotfiring.
- 3rd Day Dangers from explosives. Charging and firing of shots. Clearing off fumes produced during shotfiring.
- 4th Day Danger from blasting in gassy mines. Cracks in shot-holes. Permitted explosives.
- 5th Day Dangerous nature of explosives. Care in handling explosives. Taking shelter. Storage of explosives, on surface and belowground. Issue of explosive. Return of unused explosive.
- 6th Day General Revision and Discussion.

Model Course of Lectures and
demonstrations on Shot-firing

- 1st Day High and Low Explosives. Difference between them. Their Constituents.
- 2nd Day Shotfiring accessories. Safety fuse and its burning speed. Detonators.
- 3rd and 4th Days Provisions of Regulations etc. relating to transport, handling and use of explosives.
- 5th Day Storage of explosives, both above and belowground. Issue of explosives. Return of unused explosive.
- 6th Day Correct Drilling and placing of shot-holes. Charging and firing of shots. Blown-out shots. Taking shelter.
- 7th Day Danger from explosives in gassy mines. permitted explosives. Precautions during shotfiring in gassy mines. Dangers from cracks in shot-holes.
- 8th Day Dealing with misfires. Provisions of Regulations relating to duties of Shotfirers.
- 9th Day Examining working places and roadways after shotfiring. Clearing roadways of dust and fumes after shotfiring.
- 10th Day Firing of shots singly and in rounds. Use of delay action detonators. Testing of Circuits.
- 11th Day Heavy blasting in opencast mines. Blasting with LOX.
- 12th Day General Revision and discussion. Writing of Reports.

Model Course of Training in
Gas-testing etc.

(Demonstrations to be arranged with every Talk)
Each talk to be followed by discussion.

- 1st Talk Physical and chemical properties of inflammable gas. Occurrence of inflammable gas. Outbursts. Danger from inflammable gas in different percentages. Difference between combustion and explosion.
- 2nd Talk Other mine gases; their properties and effects. After-damp, its composition and effects.
- 3rd Talk What makes a safety lamp safe? Construction and assembly of safety lamps, both of flame and electric type. Care of safety lamps. Opening, cleaning, assembling and testing of safety lamps.
- 4th Talk Methods of Testing for inflammable gas with a flame safety lamp. Gas Caps. Accumulation and percentage tests. Precautions where gas is present.
- 5th Talk Provisions of Regulations relating to safety lamps, and to the presence of inflammable gas. Other means of testing for inflammable gas.
- 6th Talk General Revision and Discussion.

-.-.-.-.-..

Training Scheme for Coal Mine entrants
(referred to the Sub-Committee in pursuance
of a Recommendation of the Industrial
Committee on Coal Mining Made at its
Sixth Session)

Introduction

The Problem of safety in mines has been receiving considerable attention from all parties concerned, namely, the Government, the labour and the management. Fresh Regulations have been framed with a view to achieving better standards of safety in mines. No amount of legislation will however, help towards achieving this and beyond a certain limit unless due consideration is given to the part played by the 'human element' in the occurrence of accidents.

2. The two recent mining disasters in Chinakuri and Central Bhowrah Collieries have focussed attention on the hazards of the mining occupation and the need for making every effort to ensure safety. A conference on Safety in Mines composed of representatives of workers, employers, Mines Inspectorate, Mining Engineer, Members of Parliament and Mine Managers has been convened to consider the question of safety in Mines in all its aspects. The conference has just completed its work and its conclusions have been placed before the Committee separately.

3. It is obvious that to achieve increased production of coal in the Second Five Year Plan and subsequent plans, increased mechanisation of mines and work at greater depths are necessary. attention being paid to the training of personnel.

depths are necessary. This fact underlines the need for due

4. At present, untrained workers are mostly recruited for work underground without their being imparted knowledge of or training in safety principles. Though exact statistics are not available, it is known that freshers are more prone to accidents than experienced workers. In the U.K. and other foreign countries, the importance of initial training of all new entrants at mines has been recognised and the necessary training made a statutory requirements.

Requirements of training and its scope.

5. It is envisaged that training in and demonstration of safe and efficient methods of working below ground should be imparted to all persons employed in a mine, before they are sent to work below ground, except to the following

- (a) an official of the mine including junior supervisory;
- (b) a mechanic, electrician or tradesman;
- (c) a surveyor; and
- (d) a person engaged in carrying out observations or making measurements.

Details of training.

6. The training would comprise preliminary training and close personal supervision.

(a) Preliminary training-The preliminary training course would be designed to give a full and comprehensive course of training to adults and adolescents certified fit to work as adults belowground. A certificate will be awarded to persons completing the course to the satisfaction of the training officer and only certificate holders would be allowed to be engaged on work belowground.

The preliminary course will be of three weeks duration with instruction for 8 hours per day. The syllabus would be so balanced as to give the trainee a general introduction into the coal mining industry with emphasis on 'Safety and Interest'.

The training would comprise short talks, practical instruction in and demonstration of safe and efficient methods of travelling and working belowground and also practical work of a light nature, including stacking of timber, shovelling, cleaning up, handling of tubs, etc. The talks would as far as practicable be supplemented by audio-visual means of instruction. A specimen syllabus for training is given in Appendix-I.

(b) Close personal supervision.- After completing the preliminary training course, the person concerned would, for the first twenty-four working days of employment belowground or until he is competent to work without supervision, be placed under the close personal supervision of an instructor or an experienced supervising workman. In addition should a person's job be changed at any time, a further period of training may be given to ensure that the job is fully understood by the person.

Refresher Course.

(7) If a person who has left employment wishes to re-enter industry after a break of 3 years or more, refresher course will be arranged to familiarise him with modern pit conditions before he is sent belowground for work.

Estimated number of persons likely to be trained

8. In the year 1955, the average daily number of persons employed in the coal industry was 3,47,980, of whom those employed belowground were 1,87,406. As overmen/sirdars and skilled labour are excluded from the scope of the proposed scheme of training, the remaining category of workers, namely coal-cutters, loaders, and others who could be considered for training were only 1,52,845. The average turnover figure for the mine workers may be taken to be about 20%. Thus every year nearly 30,000 new workers would be required to be trained.

The above figures are based on the latest available date for the average daily labour employed. As, however, the total number of persons employed in mines at present is expected to be roundabout the same, the above figures for the new workers to be trained every year may be taken to give an idea of the task involved. The production of coal is expected to increase from the present figure of about 40 million tons.

to 60 million tons by the end of the Second Five Year Plan in 1960. Most of the additional production is, however, to be expected from open-cast mines. Where underground mines are opened, they are expected to be highly mechanised and as such, the increase in the number of workers who will be covered by the scheme is likely to be proportionately much less.

increased as the number of persons employed in the industry

9. Training Centres - On the assumption that nearly 30,000 persons will be required to be trained every year the preliminary course being of 3 weeks duration, nearly 1,800 persons will have to be trained every three weeks. Assuming that a batch of not more than 50 persons will be placed under the charge of a training officer at one time nearly 36 training centres will be required to be opened to begin with. The number of such centres will be increased as the number of persons employed in the industry increases with the increase in coal production during the Second Five Year Plan period.

10. Training staff : Each training centre meant for training a batch of 50 persons at a time will be under the charge of a training officer who will be the holder of at least a Second Class Manager's Certificate. The training Officers will be recruited from experienced retired mine managers. Each training officer will be assisted by two instructors who will be holders of at least an overman's certificate and selected from men with wide practical experience.

for 36 training centres a complements of 36 training officers and 72 instructors will be recruited. In order to co-ordinate the work of different training centres, one senior Training Officer for six training centres each and one Chief Training Officer in overall charge of the training scheme will be appointed. Clerical and other junior staff adequate to ensure the necessary administrative control will also be required to be appointed.

11. Cost of training - An estimate is given in Appendix II from which it will be seen that the scheme involves a capital outlay of Rs. 27 lakhs and a recurring expenditure of Rs. 24 lakhs.

training

12. Implementation of the scheme - The scheme of training will help workers employed belowground to work in a safe and efficient manner contributing thereby to better output and decrease in accidents. It is therefore in the interest of employers to make arrangements for their employees being given such training. The expenditure on the scheme as indicated in the preceding para will therefore have naturally to be borne by the employers. In the U.K. the responsibility for similar training is that of the employers.

13. Enforcement of the Scheme - It is hoped that employers would voluntarily take advantage of the scheme. The Government are however, considering the amendment of the Mines Act, 1952 to empower them to make rules for requiring the imparting of practical instruction on work in mines.

14. A suggestion has been received in this connection from the Coal Controller that the best way for imparting vocational training will be within the industry itself and that for this purpose collieries in an area may pool their efforts and arrange for the training and refresher course by their technical officers in their off-hours.

15. To sum up the proposal is that persons employed in coal mines should be given training before they are engaged in work belowground. The imparting of such training is in the interest of employers and the expenditure on the scheme will be met by them. The views of the Committee are sought on the proposal generally and particular on the following.

- (1) the syllabus.
- (ii) the arrangements of imparting the training scheme.
- (iii) the ways and means of raising the finance required to the scheme and for apportioning the expenditure among the employers.
- (iv) the main provisions which should be included in the proposed rules to be framed under the Mines Act.

.....

APPENDIX - I

Training syllabus

1st Day (Surface)

Talk Organisation, time keeping, the need for discipline and punctuality, and other matters of general interest.

Visit Attendance Room, Pit-head bath, Canteen, Rest Shelters, Creche and Medical Centres.

2nd Day (Surface)

Talk Colliery Rules and Standing Orders etc., Safety in the vicinity of machinery.

Visit Colliery Tranways and sidings, haulage, Reem, Winding Room, Boilers, Electrical Gear.

3rd Day (Surface)

Talk Centraband materials, checking system and care of lamps.

Visit Lamp Room and entrances to the mine underground.

Practical Work Tub manipulation, coupling, trammig, lockering and re-railing of tubs etc.

4th & 5th Day

Talk First Aid and Hygiene, Fencings.

Visit Underground - pit bottom, travelling road, second outlet, coal faces, haulage and trammig roads, underground latrines, first-aid stations and fencings underground.

6th & 7th Day

Talk Methods of Transport belowground, signalling, manholes and other safety appliances on haulage roads.

Practical work Tub manipulation, coupling, trammig, lockering and re-railing of tubs etc. and signalling.

8th & 9th & 10th Days.

Talk Coal face work, roof control, testing of roof and support regulations, First Aid Hygiene.

Practical Work Prop setting check building and withdrawal.

11th Day

Talk Ventilation, lighting.

Visit under-ground for Ventilation and lighting devices - Fan House, air crossing, stoppings, Regulator and doors etc.

Practical-work Erecting, brattice cloths, ventilation 'Fast End'.

12th Day

- Talk Shot firing and Safety Regulations.
- Visit under- Practical demonstration of traking
ground for shelter etc.
- Practical Building of sand bag stopping.
work

13th Day

- Talk Causes and prevention of fires
underground noxious gases - their
occurrence and detection, care of
lamps.
- Visit under- Practical demonstration of fire
ground for fighting devices and detection, of
noxious gases.

14th & 15th Day

- Talk Legislation and Duties of Workpersons.
- Visit under- 'What's wrong'
ground for
- Practical Pipe laying and track laying.
work

16th Day

- General revision.
- Practical Cleaning up of galleries.
work

17th Day

- Oral Tests.
- Talk Mine officials and their duties.

18th Day

- Talk By senior Training Officer;
Presentation of Certificates.

.....

APPENDIX - II

Details of the staff required for the training centres and their cost

1.	<u>Designation</u>	<u>No.of posts</u>	<u>Scale of Pay</u>
1.	Chief Training Officer	1	Rs.1300-1600
	(a) Steno-Typist	1	Rs.60-130 plus S.F. Rs.20.
	(b) Clerk(U.D.C.)	1	" 80-220
	(c) Clerks(L.D.C.)	2	" 60-130
	(d) Class IV	3	" 30-35
2.	Senior Training Officers	6	" 600-1150
	(a) Steno-typist	6	" 60-130 plus S.F. Rs.20.
	(b) Clerks(L.D.C.)	6	" 60-130
	(c) Class IV	12	" 30-35
	(d) Van drivers	6	" 60-75
3.	Training Officers.	36	" 275-800
	(a) Instructors	72	" 150-300
	(b) Clerks(L.D.C.)	36	" 60-130
	(c) Class IV	36	" 30-35

For the major coalfields buses may be necessary to take the trainees around other mines for practical demonstration of special features. A provision of 6 buses may, therefore, be made.

EXPENDITURE

Non-Recurring

1. Bungalows and staff quarters	Rs.23,00,000
2. Buses(6)	Rs. 1,50,000
3. Equipment etc. for training centres.	Rs. 2,50,000
Total:	<u>Rs.27,00,000</u>

Recurring:

1. Salary and D.A. of officers and staff.	Rs. 7,44,000
2. Stipends for trainees	Rs.16,00,000
3. Travelling allowance	Rs. 25,200
4. Maintenance of buses	Rs. 30,000
	<u>Rs.23,99,200 or say</u>
	Rs.24,00,000

This is worked out on the assumption that full wages will be paid to the trainees during the period of training and that arrangements in regard to boarding and lodging will not be made by employers.

IMA SCHEME
FOR TRAINING NEW ENTRANTS TO COAL MINES

SCOPE OF
THE
SCHEME

The primary purpose of this scheme is to inculcate basic ideas regarding safety in the minds of men who have never worked underground i.e. to give them 'pit sense' and to accustom them to underground conditions before they are left to look after themselves. The scheme also provides for trainees to be shown the rudiments of the methods used in carrying out the jobs individuals will eventually have to undertake since considerations of safety often have a considerable bearing on the methods which should be employed in doing a particular job in the conditions prevalent underground. Further training in job methods must be left to the various apprenticeship and training scheme being introduced on an ever increasing scale by managements in order to improve the standards of skilled technical and supervisory work in mines. This scheme is therefore intended mainly for men recruited for unskilled and semi-skilled work.

In the training to be imparted through this scheme, special attention will be given to safety on haulage roads and safety at working faces since the two main sources of danger to in-experienced or careless men are traffic on haulage roads and falls from roof and sides at and near working faces.

Finally, a point that needs to be made clear, is the fact that the number of completely raw men who have never worked in a mine who are taken into employment is, in these days, very limited. The big majority of men newly employed in any mine have previous experience at some other mine and do not therefore come within the scope of this scheme.

CLASS OF
EMPLOYEES
MAINLY
CONCERNED
IN THE
SCHEME

As already stated this scheme in general will apply to unskilled and semi-skilled labour. The majority of such men fall within the following categories.

- (1) Loaders.
- (2) Trammers.
- (3) Timber and Line Mazdoors.
- (4) Mazdoors assisting fitters and electricians.
- (5) Mason Mazdoors.
- (6) General Underground Mazdoors doing miscellaneous jobs such as cleaning, bailing, stone dusting etc.
- (7) Coal Cutting Machine Mazdoors.
- (8) Drill Mazdoors.
- (9) Tyndals.

TRAINERS.

In the groups of collieries under the management which are within a reasonable distance of each other, Training or Safety Officer should be appointed to take charge of the operation of this scheme. Suitable men for such a post would be old and experienced Senior Overmen or Undermanagers of Assistants near the end of their active service as mining officials. In addition to the appointment of a Safety Officer, certain skilled and/or experienced workmen who can undertake the training of one or more new men attached to them for the purpose should be designated as trainers. Examples of such men are given below.

- (1) Working loaders' sirdars. These men supervise gangs of loaders under them and either load coal along with their men or, at the very least, spend a full shift underground supervising the work of their men.

- (2) Working Trammers' Sirdars.
- (3) Traffics (where such posts exist). These men exercise general control over the flow of tubs underground to different districts. Their duties are in some respects similar to those of trammers sirdars.
- (4) Timber Mistries.
- (5) Line Mistries.
- (6) Electricians and Fitters.
- (7) Masons.
- (8) Coal Cutting Machine Drivers.
- (9) Drillers (Electric).
- (10) Dressers.
- (11) Tyndal Jenadars.
- (12) Overmen and Mining Sirdars.

Such selected trainers should be given a training allowance at the rate of 50 nP per trainee per day of training.

SELECTION OF TRAINEES.

Where selection is not already being made through a regular system of interview by the Manager personally or by a board, such a system should be introduced in order to cut out nepotism and corruption. A suggested board could consist of

- (1) Manager.
- (2) Welfare Officer.
- (3) One experienced Overman.
- (4) The Safety Officer (if there is one) whose jurisdiction covers the colliery in question.

Since raw hands will have to undergo a period of training during which they can do little or no productive work, the Manager will have to think ahead in assessing what vacancies will have to be filled.

At the interview of prospective candidates the first point to be cleared up will be the question of whether the individual has worked in mines before or not. If the individual claims that he has worked in a mine, a statement should be taken from him in which he should give the names of some at least of the collieries in which he has worked and stating the nature of the work done by him, and this statement should be attested by the individual by a signature or thumb impression. Where the individual has worked in a mine previously he will, if selected join as a workman immediately and will not come within the scope of the scheme. Men with no previous experience in mines, if selected should be properly documented.

TRAINING

The course of training should normally last about a month. In order to facilitate training and in order to further reduce any hazard in sending raw men underground even though they are in the charge of experienced men, a separate training gallery should be equipped in a disused part of a working mine or possibly in an abandoned incline. The training gallery should be equipped with a haulage, track, tubs, timber for the setting of props and the building of cogs, a coal face, etc. The working of the training gallery should be under the direct charge of the Safety Officer who should have the services of such staff as a haulage khalasi, a few trammers, timber men, dressers etc. as may be required from time to time.

Each batch of new recruits will be placed in the charge of the Safety Officer who will start their training with lectures on the various operations involved in the winning of coal from the face and its transportation to the surface, which are required in the interests of safety.

This should be followed by a tour of surface installations. The trainees should then be taken underground to the training gallery where they will first see the various operations being carried out after which they will be called upon to assist in these operations. Though many of the trainees may not be destined to become, say, trammers, or coal face workers, it will be of advantage for them to have taken part in these operations.

The period spent on lectures and in the training gallery should be between ten days and a fortnight. At the end of this period the Safety Officer should report on any man who has shown himself to be obviously unsuitable for work underground, and such men should be weeded out at that stage.

NOTE: If for any reason (such as isolation of individual collieries) it is not feasible to set up a training gallery, the period of training in such a gallery will of course have to be omitted. In such cases, after completing the course of lectures and the tour of surface installations, the Safety Officer should take trainees in small batches on a tour of working sections where the various operations being carried on will be explained to them, special attention being drawn to safe practices, thereafter the trainees should be attached to their trainers as mentioned below and the period of such training will therefore be longer in order to compensate for the absence of training in the training gallery.

After completing the course in the training gallery, trainees should then be put in the charge of trainers of the appropriate category for further training and experience in working sections. These trainers will be responsible for taking the trainees attached to them to work with them and, while carrying out their own normal work, will see that the trainees pick up the work by carrying out the various tasks given to them by the trainers. The progress of the trainees should be under close supervision of the Safety Officer who should satisfy himself that trainees are not, on the one hand, left to sit idle and learn nothing due to the pre-occupation of trainers in their own work while on the other hand trainers do not try and get too much work out of the trainees attached to them at the cost of their ability to acclimatise themselves properly to conditions of work in a pit.

During the course of this phase of training the attention of trainees should be specially drawn to safety measures such as seeing that the gates of the cage are properly closed, care in walking on haulage roads, care in avoiding loitering or resting near curves on haulage tracks the avoiding avoidance of fenced off areas, care in avoiding moving machinery as conveyors etc. The trainee should also be shown the quickest and safest routes of egress from sections in which he is likely to have to work, in the event of an emergency.

In the case of trainees who will be working at the coal face special attention should be given to danger from falls of roof and sides and danger from flying fragments caused by the use of explosives.

In gassy mines all trainees will have to be given an understanding of how gas manifests itself and the dangers that go with the presence of gas. This should be done by the Safety Officer personally.

At the end of the Course of training the Safety Officer should discuss the progress made by each trainee with the trainer under whom he has been learning and should then make out a brief report giving particulars of the trainee, the trainer under whom he has been learning and comments as to whether the man has made satisfactory progress or not and whether he can be employed as a full-fledged workman. These reports should be submitted to the Managers of the collieries in which the men are to be employed. The trainee should then be interviewed by the Manager of his representative (this might be an experienced Undermanager) who should put questions to him regarding the experience he has gained with a view to finding out whether the man has actually grasped the fundamentals of how to avoid accidents. If the replies are satisfactory, the man will be eligible for absorption in whatever suitable vacancy exists, If the replies are not satisfactory, the Manager may either discharge the trainee or, if he thinks fit send him back for a further course of training.

It should be clearly understood that during the period of training, the trainee is a learner on trial and is not a workman and does not have the rights of a workman. It will be open to the Manager to discharge summarily any trainee if he considers this necessary. A man under training will not receive any wages but will be given an allowance of Rs.1.50 per day.

A satisfactory completion of the training course does not automatically entitle a trainee to be appointed as a full-fledged workman though, naturally, the management will normally do this on the grounds of equity and because a certain amount of money has already been spent in training the individual.

---.---.---.---

GENERAL ADVICE

TO ALL CATEGORIES

1. Develop the queue habit - don't fight or push for the cage.
2. Listen to the advice or orders of people like Mining Sardars, Overmen, Banksmen, Onsetters, Lamp Checkers.
3. Use travelling roads provided.
4. Only use haulage road if your work takes you in that road.
5. Don't sit near curves - use rest stations.
6. Wear safety boots and safety hats - the extra money spent may save you a lot in lost wages.
7. Look after your lamp, it is your best friend - never tamper with it - it can be your worst enemy.
8. If a ventilation door is closed - close it when you pass through.
9. Don't enter fenced off areas for any reason unless ordered by an official.
10. Keep your working place as clean as possible - don't leave odd things lying around.
11. Don't foul main roadways - use latrines provided.
12. Don't steal brattice cloth - it is put there for a purpose.
13. Do not go underground in a drunken state. Your life is precious.
14. Do not sleep in work-sites, haulage planes and other places - many lives and limbs are lost due to this malpractice.
15. Do not carry any apparatus for striking fire underground. Never smoke underground - results are disastrous.
16. Carry drinking water in bottles provided to guard against disease.
17. Enter and leave a cage from the Banksmen/Onsetter side. Tampering with a gate on the other side may lead to a fatal accident.
18. Never tamper with supports or other safety devices - these are there for your protection.
19. Always be sure - footed at working places and on travelling roads as slipping will result in accidents and loss of wages.
20. Never fight underground. You have deadly weapons in your hands.

MINERS AND LOADERS

1. Always wear your safety boots - coal is harder than toes.
2. Never enter a working place to load coal until the roof and sides have been checked.
3. If basket loading - don't put lumps on the top of an already full basket.
4. Before loading a tub make sure it is spragged.
5. Remain clear of tram tracks while waiting for your tubs.
6. Wear safety Hats a very small stone from a height can do a lot of mischief.
7. Keep on checking roof and sides of your working places at regular intervals - it pays good dividends.
8. Never overload baskets - falling coal pieces have caused many serious accidents.
9. Walk cautiously on slopes and wet floors - a slip will put you off the work for many days.
10. Use sharp picks and tools, blunt tools make small coals fly causing many eye injuries.
11. Never sit on the Tramlines, curves - Moving tubs have cost innumerable lives.
12. While taking empties to work sites, take tubs when these are across safety stop blocks and after these blocks are closed.
13. While working in depillaring areas do not use the work sites as centre for gossips. Noise conceals indications of roof movement which may result in Major accident.
14. Never indulge in robbing pillars - You weaken the entrance and exit of your worksites and help premature collapses.
15. Never sleep in working places - roof conditions are constantly changing in a mine.
16. Never cross the fencing - it is there as a visual warning for sure danger across.
17. Never bribe the Supervisory staff for easier working places. This is indirect robbing.

DRILLING

1. Before drilling check roof and sides and test for gas.
2. Check up the cable from any damage before use.
3. Check up the drills and drill transformer for proper working of the same.
4. Look after your m/c - don't throw it around when you have finished.
5. Look after your cable - keep it coiled figures of 8 when not in use.
6. Switch off at panel when not drilling.
7. Do not tamper with electricals. Send for the Electrician in case of trouble.
8. Never use bull force on the drills - the bits of the drills are designed for particular hardness of the strata.
9. While withdrawing the drill from hole, hold it fast - slackness on this score has caused many a serious accident.

TYNDALS

1. Use safety appliances where provided, i.e., sylvesters, safety bulbs.
2. Check up your lamps, strength of bamboos and other tackle and appliances which are vital for discharge of your duties safely.
3. Never show over-smartness and take extra risks in shafts.
4. Use safety belts for all works in the shaft.
5. When lifting heavy loads with 4 - 6 men (Chowali or Chhawali), men should be nearly of equal strength and see they carry equal load. Many accidents have been caused by men of unequal strength carrying unequal load.
6. Develop team spirit while tackling heavy jobs. No member should be over strained and effort should be simultaneous, Don't take off your share of load without warning.
7. Never use loose clothes; these are apt to be caught in moving heavy machinery parts leading to accidents.
8. Never attend to the machinery in running conditions, Let the moving parts come to rest.
9. Don't put your hand underneath heavy machinery being removed; it will be crushed.
10. Use safety boots as the plant you are handling is harder than your toes.

-.-.-.-.-

TIMBER MEN

1. Set timber as soon as possible after coal has been loaded.
2. Set good timbers, not thin or bent props.
3. Set under dressed roof not under loose.
4. Set timber on floor not in packing.
5. Set timbers and cogs tight, and keep them tight.
6. Change broken props. Broken props hold nothing.
7. Before setting, test roof for loose pieces that may fall during setting.
8. Your 'Bosula' is sharp, carry it safely.
9. If you work in a high section - use the long buntun for roof testing and the ladder for climbing.
10. Clean up prop chippings after cutting.
11. Withdraw props from a position under good roof using Sylvester and chain.
12. While lowering props in the shaft men working on cage must use safety belts.
13. Sharp ends and projections of the timber must be smoothed as these cause cuts during handling.
14. While loading a Trolley with props see that it is not over-loaded, that it is properly coupled to the haulage rope or tubs and do not walk in front of a trolley moving on gradients.
15. Learn and understand the systematic timbering being adopted in your section and never wait for fresh instructions to comply with such statutory pattern of timbering.
16. Use proper sized lids. Half the thickness of timber or prop and 3 times diameter of prop.
17. Set lids at right angle to ^{cracks,} slips and planes of weaknesses. No. other position can support so well as to ensure safety.
18. After blasting check the stability of props by your measuring stick, falling props after having worked loose have killed many a workman.
19. Listen to the indications of roof movements in depillaring area when withdrawing timber. Don't enter an old goaf where strata is mobile or "Gram chandni" lit it cool down before you start work of withdrawing timber.

TRAMMER

1. Always sprag a standing tubs.
2. Always use sprags on the rise journey.
3. If set riding use the chair.
4. Do not wear loose clothing, it may catch in the moving tubs.
5. Push a tub using flat hands, do not grip the top.
6. Uncouple tubs from side and under buffer, not from top.
7. Keep your head from between tubs.
8. Never ride on buffers or between coupled tubs.
9. Close stop-blocks when tubs are not passing.
10. Report immediately any defect in safety appliances.
11. On a dip always lower a tub from side or behind, never in front.
12. While lowering tubs on gravity, always shout a warning. Someone may be on the track.
13. Examine the capple and rope as far as possible - you can be hurt by its failure.
14. Irregularities on the track in your section if not reported may lead to serious accidents affecting your work, life and limbs.
15. Check up the couplings between tubs and the rope and tubs before finally signalling for movement of tubs, withdrawal of stop blocks and opening of runaway switches.
16. Never walk behind a moving rake on gradient, runaways have cost many lives.
17. Odd protrusions of tub or mine car parts are deadly get these attended to at the earliest to avoid serious cuts and other accidents.
18. While re-railing the tubs, use crerrailers; if to be lifted by hand never hold wheels by hand.
19. While re-railing the tubs, or attending to derailments: etc. when men are at work on track, give very precise signals. Irresponsible signalling has cost many a life!
20. While setting the tubs/mine cars in the cage, beware of tubs gone over size due to damage. There may be very little clearance between the side of the cage and damage tubs and crushing of hands and limbs are usual accident.
21. After the tubs have been pushed in the cage see that monkeys are properly holding the tubs and the safety chains of the cage are put on.
22. Make use of shoes, and other safety equipment.

COAL CUTTING MACHINE MEN

1. Do not wear loose clothing.
2. Always watch your roof when setting anchor props.
3. Keep clear of anchor props in case of slipping.
4. Do not move pick chain until all are clear.
5. Do not cut unless water sprays are working.
6. When you have finished a cut and cleared the machine, switch off at the control panel, as well as the machine.
7. Do not cut until Mining Sirdar has tested for gas and checked the roof.
8. Report immediately any control defects.
9. Watch the trailing cable, especially when flitting. See it does not pull from the panel.
10. Keep cable coiled "figure-of eight" when not in use and hung clear of the floor at all times.
11. Carry your oil and grease in closed containers, and
do not spill.
12. Keep your machine as clean as possible from oil and grease and coal dust.
13. Carry your pick gauge and fix all picks to correct setting.
14. Check your cable for any cuts or leaks.
15. When cutting towards rise on a gradient do not stand or allow others to stand at the back of machine, anchor rope breaking may make the machine slide down causing serious and fatal accident.
16. While cutting do not stand near the moving chain or allow any body to stand near the chains breakage of which will lead to accidents.
17. Use sharp picks, blunt picks cause breakage of chains leading to accident.
18. When flitting from face to face keep the haulage and advancing and not the jib.