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LAHORE

Indian Explosives Act (IV of 1884)

Indian Petroleum Act (VIII of 1899)

THIRTY-FOURTH ANNUAL REPORT

OF THE

Chief Inspector of Explosives
in India

Being his Annual Report for the year ending 31st March 1933

14464

1933



DELHI: MANAGER OF PUBLICATIONS

1933

Price Rs. 2-4 or 4s.



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Thirty-fourth Annual Report of the Chief Inspector of Explosives in India.

No. G.-28 (1)-10.

FROM

DR. L. NICKELS, B.Sc., PH.D., A.I.C.,

Chief Inspector of Explosives in India,

TO

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

SIMLA.

Calcutta, 17th August 1933.

SIR,

I have the honour to submit herewith a report of the work of the Department of Explosives during the year ending 31st March 1933.

2. Dr. N. L. Sheldon, C.I.E., Ph.D., F.I.C., Chief Inspector of Explosives in India, was granted leave out of India on Personnel. average pay for 2 months and 24 days combined with leave on half average pay for 3 months and 7 days, preparatory to retirement, with effect from the 4th May 1932. He retired from service with effect from the 4th November 1932.

Dr. W. P. Robson, M.A., Ph.D., A.I.C., Works Manager, Cordite Factory, Aruvankadu, was appointed as Chief Inspector of Explosives in India for a period of two years with effect from the 4th May 1932. Unfortunately while he was on a tour of inspection in the Punjab he was found dead in his compartment in the train at Kalka on the morning of the 18th June 1932. Death was apparently due to heat-stroke and heart failure.

Mr. P. W. Alloway, F.C.S., F.F.Sc., Inspector of Explosives, Northern India, Lahore, was appointed temporarily as Chief Inspector of Explosives in India with effect from the afternoon of the 21st June 1932. He handed over charge to me on the afternoon of the 10th September 1932.

Mr. B. N. Pal, M.Sc., temporary Inspector of Explosives, was transferred from Calcutta to Lahore and was posted to the Northern India charge during the period Mr. P. W. Alloway was appointed temporarily as Chief Inspector of Explosives in India.

The two temporary posts of Inspectors of Explosives held by Dr. M. K. Maitra, Ph.D., A.I.C., A.R.C.S., D.I.C., B.Sc. (London), and Mr. B. N. Pal, M.Sc., respectively, were extended for a further period of one year and four months with effect from the 1st November 1932.

Explosives.

3. During the year 1932, 217 licenses were granted in British India under Rule 46 and items 10 and 11 of Schedule II to the Indian Explosives Rules, 1914. The number of magazines

Number of magazines.

licensed was 258 or 18 less than in 1931, and is in excess of the number of licenses granted, because in a number of cases firms have two or more magazines in one place under one license. The decrease was due to trade depression. A statement showing the number and location of the magazines and also the number of licenses granted in British India during the year 1932 is given in Appendix A, and a statement showing the number of magazines and licenses granted during the past ten years is shown in Appendix B.

4. During the year, 114 inspections of magazines were made, a number of magazines being inspected two or three times. Those magazines are

Inspection of explosives magazines during the year.

inspected most frequently which are situated in the neighbourhood of towns or in populous localities, or which contain large quantities of explosives, or any explosive which on account of its greater susceptibility to decomposition and possible ignition, it is considered advisable to examine and test more frequently than other explosives.

5. The magazines generally are in good order, and as usual magazine-owners have been found most willing to carry out recommendations even

Condition of magazines.

when involving considerable expense, and my thanks are due to them for making my duties easy in this respect.

6. The physical condition of all the explosives in the different magazines

Condition of explosives in magazines.

during the year was found to be good with the following exceptions, which were found to have become defective and were destroyed:—

(a) 58 lbs. of Dynamite from the magazine of Messrs. Shaw Wallace & Co. at Jamshedpur.

(b) 300 coils of Safety Fuze from the premises of Messrs. Grindlay & Co., Ltd. at Calcutta.

(c) 12,870 Nobel's Submarine Second-Delay Low-Tension Electric Detonators, 469 Nobel's No. 6 Detonators, 31 sticks Nobel's Gelignite, and 743,929 feet Nobel's Safety Fuse, which were stored in the Public Works Department magazine at Jogindar Nagar, Mandi State, were destroyed by the Inspector of Explosives, Northern India, Lahore, at the request of the Superintending Engineer, Construction Circle, Hydro-Electric Branch, Jogindar Nagar.

- (d) 39 cases of Safety Fuze from the premises of Messrs. N. C. Daw & Co. at Calcutta.
- (e) 88 lbs. of Dynamite,
68½ lbs. of Monobel No. A2,
649 Electric Detonators, and
127 Treble Detonators No. 3A
- (f) 2 cases of L. G. Gelatine and
35 cases of Rockite
- (g) 282 cases of 50 lbs. each and 2 small cases of about 20 and 15 lbs. respectively of Gelnite which were stored in the magazine of Mr. Noormohamad Mitha at Kandivli, were destroyed by the Inspector of Explosives, South Circle, Poona, at the request of the District Magistrate, Bombay Suburban District.
- (h) 882 cartridges of Dynamite from the magazine of the Burchin Syndicate, Ltd. at Tawmaw.

{ from the magazine of the
Manager, Burrakur Coal Co., Ltd.
at Saltore Colliery.

{ from the magazine of Messrs.
Gillanders Arbuthnot & Co.,
Agents, Nobel's Explosives Co.,
Ltd. at Bally.

Thefts.

7. During the year under report six cases of theft of explosives were reported to this office.

8. One thousand seven hundred and twenty-three tons of explosives were imported into British India during the year 1932, the value being Rs. 21,17,994. Full details showing the different kinds of explosives imported, and the value of each are given in Appendix C. A comparative statement showing the quantity of explosives imported during the last 10 years is given in Appendix D.

Import of explosives.

9. A list of explosives at present authorised for importation into British India was published in the *Gazette of India* for information and is given in Appendix E.

Authorised explosives.

10. Three licenses granted by the Governor-General in Council for the manufacture of gunpowder, viz., two in the Districts of Chanda and Chhindwara respectively in the Central Provinces and one in the District of Jhelum in the Punjab, were renewed for the year 1933. A fresh license for the manufacture of the explosive in the District of Manbhum in Bihar and Orissa was granted for the year 1932 owing to the removal of the factory to a new site and renewed for the year 1933.

Manufacture of explosives.

The license granted by the Governor-General in Council for the manufacture of Pranada (M and Q Powder)—an explosive of 2nd (Nitrate-mixture) class—in the District of Burdwan in Bengal was also renewed for the year 1932. The factory has now been closed.

Two licenses granted by the Governor-General in Council for the manufacture of liquid oxygen explosives in the whole of British India and in the District of Hazaribagh in Bihar and Orissa respectively were also renewed for the year 1933.

Petroleum.

11. During the year under report, 8,781 licenses for the storage of dangerous and non-dangerous petroleum, regarding which this Department Number of Petroleum Premises. was concerned or consulted, were granted. A list of these premises, corrected up to 31st December 1932 and showing the districts in which they are located, is given in Appendix F.

12. A large number of special licenses were granted under rule 6, Storage of dangerous petroleum in bulk. Chapter IV, Part II of the Petroleum Rules for the storage of dangerous petroleum in underground tanks fitted with Kerbside pumps.

A large number of dépôts for the storage of dangerous petroleum in bulk erected to plans approved by this Department have been taken into use.

13. Several combined petrol, kerosene and liquid fuel dépôts erected to Combined storage of petrol, kerosene and liquid fuel. plans approved by this Department have also been taken into use.

14. In all 2,015 inspections of petroleum Inspection of petroleum premises during the year. premises were made.

15. The large petroleum installations are usually under efficient European Condition of major installations. supervision and are in good order and well looked after. There is, however, a tendency on the part of the newer oil firms to put in responsible charge of such installations employees with insufficient practical experience and technical knowledge.

16. The small or minor petroleum installations are installations in which not more than 50,000 gallons of kerosene or liquid fuel in combined bulk Condition of minor installations. and non-bulk are stored. The oil for these installations is supplied from the major installations at the different ports, and the retail trade is carried out in them. A great deal of inspection of these minor installations has been done by this Department with the result that their condition is very much improved and the majority of them are in very good order. Exceptions are mainly to be found among the firms referred to in paragraph 15 above.

Accidents.

17. A list of accidents, with a short account of each, that have occurred with explosives, inflammable substances, dangerous goods, etc., between the Number of accidents. 1st January and 31st December 1932 is given in Appendix G. It will be seen from a perusal of the details that practically all the accidents were caused by gross neglect of ordinary precautions. 28 such accidents resulting in 38 deaths and injuries to 47 persons were reported to this Department. Comparative statements given in Appendices I and J show the total number of accidents and the number of persons killed or injured by them during the last ten years. As stated in previous reports it is very doubtful whether all accidents that occur are duly reported to this Department and therefore, it is very possible that the statistics given are underestimated.

As a rule the only accidents that are entered in Appendix G are those which are non-political and cause loss of life or injuries or are important from some other point of view.

Gunpowder, Class I.

18. There were two accidents from gunpowder during the year causing three deaths and injuries to one person.

Nitro-Compounds, Class III.

19. No accidents from nitro-compounds were reported during the year.

Chlorate Mixture, Class IV.

20. No accidents from explosives classed as Chlorate mixtures were reported.

Fulminates, Class V.

21. Five accidents from fulminates causing four deaths and injuries to fifteen persons were reported.

Ammunition, Class VI.

22. There were two accidents from ammunition causing injuries to two persons.

Fireworks, Class VII.

23. Thirteen accidents from fireworks caused twenty-two deaths and injuries to seventeen persons.

Liquid Oxygen Explosives.

24. No accident from Liquid Oxygen Explosives was reported during the year.

25. There were four accidents from petroleum during the year, which were responsible for nine deaths and injuries to ten persons. It will be seen from a perusal of the accidents in Appendix G that carelessness is a prominent feature in most of them. In India the petroleum accidents are caused usually by naked lights being brought into close proximity to oil vapour.

Petroleum.

26. A number of fires were reported to this office as having occurred during the year in the Burma Oil Fields.

Chemicals.

27. No accident from chemicals was reported.

Miscellaneous.

28. There were two miscellaneous accidents causing injuries to two persons.

General Remarks.

29. Twenty reports of inspection of these magazines by civil officers have been received in this office, and I have brought to the notice of the officers concerned any irregularities or defects which required remedying. There is no doubt that the introduction of this system of sending these reports to this office has been desirable. I have come across a good many instances of ignorance and want of expert knowledge, which might have caused disasters. High explosives in these magazines had previously, frequently, never been tested, and I have, in dealing with these reports, recommended always that samples of these explosives should be sent at least once a year to Chemical Examiners for test.

Government Magazines in charge
of civil officers.

At the request of the Superintending Engineer, Construction Circle, Public Works Department, Hydro-Electric Branch, Jogindar Nagar, the Inspector of Explosives, Northern India, Lahore, inspected the magazines of the Department at Jogindar Nagar on the 9th and 10th March 1932 and examined the surplus stock of explosives left on completion of the tunnelling operations in the project with a view to see whether they were fit for sale or transfer to other Departments. He found the stock of Gelignite, Blasting-powder Pellets and Detonators No. 6 and of Electric Detonators, 10 Second Delay-Action, received during 1930-31 in good condition, but not that of the last mentioned explosive received during 1927-28 and of Safety fuze which were recommended to be destroyed. Owing to heavy rains during his visit the Inspector of Explosives was unable to destroy the condemned explosives at that time. He, however, destroyed them on the 21st and 22nd October 1932.

30. The following 5 cases of shortages of high explosives were reported by Messrs. Best & Co., Ltd., Agents, Nobel's Explosives Co., Ltd., Madras :—

Shortages of high explosives.

(1) The firm received 200 cases of Gelignite 1½" 50 per cent. from London per S. S. "C/Macnaughton" which arrived at Madras on 3rd July 1931. Of these, 10 cases were sent from Madras to Sengareni Collieries on 25th January 1932. On 19th October 1932 the firm received a complaint from the General Manager of the Sengareni Collieries Co., Ltd. that in one case, forming part of this consignment, one packet of 5 lbs. was short and that the case contained only 9 packets instead of 10.

(2) The firm received 1,500 cases of Blasting Gelatine 7/8" from London per S. S. "C/Stuart" which arrived at Madras on 2nd July 1932. Of these, 40 cases were sent from Madras to Bangalore magazines in two lots, each 20 cases, on 29th August 1932 and 22nd September 1932. 10 cases of the explosive *ex* this lot were despatched from Bangalore magazines to the Superintendent, Sinduvalli Mines, Kadakola, on 17th October 1932. On 16th November 1932 the Superintendent advised the firm's Bangalore agent that in one case, forming part of this consignment, one lb. of Blasting Gelatine was short in a 5 lb. packet, which contained only 39 cartridges.

(3) The firm received 500 cases of Gelatine Dynamite 7/8" from London per S. S. "C/Stuart" which arrived at Madras on 2nd July 1932. Of these, 50 cases and 8 cases were sent from Madras to Bangalore magazines on 29th August 1932 and 22nd September 1932 respectively. 8 cases of the explosive *ex* this lot were delivered to the Sinduvalli Mines' representative in Bangalore on 21st December 1932. On the same date the Superintendent of the Sinduvalli Mines advised the firm's Bangalore agent that in one case, forming part of this consignment, one packet was empty, *i.e.*, 5 lbs. short.

(4) On 14th January 1933 the firm received a letter from their agent at Bangalore advising that two packets in one of the remaining cases of Gelatine Dynamite 7/8" referred to in item (3) above were empty, *i.e.*, 10 lbs. short.

(5) The firm received 200 cases of Dynamite 7/8" from London per S.S. "C/Macnair" which arrived at Madras on 12th April 1931. Of these,

30 cases and 20 cases were sent from Madras to Bangalore magazines on 29th August 1932 and 22nd September 1932 respectively. Out of 10 cases of the explosive delivered *ex* this consignment to the Executive Engineer, New Bangalore Water Works Division, on 9th January 1933, it was reported, 2 packets in one case were found empty, *i.e.*, 10 lbs. short.

The above shortages were also reported by the firm to the Commissioner of Police, Madras, who investigated the matter. The firm have informed me that the Police have not been able to trace any of these shortages.

The firm, however, do not consider that these shortages are due to thefts on *this side* as their agent at Bangalore has reported to them that in all instances where shortages have been discovered, the cases did not show any signs of having been previously opened. They are of the opinion that the shortages are occurring at the factory at Home.

31. In their Notifications No. M-1004, dated the 19th May and 4th October 1932, respectively, the Government of India amended the Indian Explosives Rules, 1914, so as to prescribe revised scales of fees for different kinds of licenses granted under the rules. They also amended the entry in column 4 against Article 17 of Schedule II to the rules so as to provide for the grant of a license to sell from a magazine in connection with which a license has been granted under Article 13 or 14, any explosive covered by the latter license in any quantity.

In their Notification No. M-1099, dated the 3rd November 1932, the Government of India also amended the Explosives Rules so as to prohibit the importation of crackers by land from the French Settlements of Pondicherry and Karikal.

In their Notification No. M-1217, dated 21st November 1932, the Government of India amended Schedule I to the Explosives Rules, regarding test for liability to exudation.

32. The period for which the importation into British India by the Agents of Messrs. Nobel's Explosives Co., Ltd. of Detonators packed in cases with a clear space of not less than one inch, instead of not less than three inches as required by the regulations for package of explosives given in Schedule IV to the Indian Explosives Rules, 1914, was agreed to, was further extended by one year from 6th June 1932.

For Dynobel No. 2, Samsonite No. 3 and Buelenite.

33. The explosives referred to in the margin were allowed to be imported into British India.

34. This Department was consulted by the District Magistrate, Poona, with regard to conditions which should, in addition to those in "Precautions to be taken in using explosives", be enforced in permits granted to petty contractors for carrying on blasting operations around Poona.

35. The Government of India sanctioned the amendment of condition 3 of license forms B and C and condition 1 of license forms H, K and M and of pass form I-I appended to the Petroleum Rules in force in the various Presidencies and Provinces so as to prescribe revised gauges of metals for receptacles of varying capacities for dangerous petroleum.

They also sanctioned the amendment of chapter I of Part II of the Petroleum Rules and of the conditions endorsed on license forms D, E, N and P appended to those rules so as to provide for the conditions subject to which a petroleum storage tank may be tested by filling it with water and persons allowed to enter such tanks.

The Governments of Assam and the Punjab amended rule 15 of chapter IV, Part II of the Petroleum Rules in force in Assam and the Punjab respectively and license form N attached thereto so as to provide for the storage of petroleum in non-bulk under the license. They also amended the heading of license form P appended to those rules by the substitution of the words "in installations" for the words "in bulk". The latter amendment was also made by the Governments of Bengal, Bombay and Madras in the Petroleum Rules in force in those Presidencies.

In their Notification No. 48, dated the 28th September 1932, the Government of Burma amended the Petroleum Rules in force in Burma so as to regulate the transport by sea of dangerous petroleum, otherwise than in bulk, from any port in Burma. The Government of Madras also in their Notification No. 1396, dated the 25th April 1933, amended the Petroleum Rules in force in the Madras Presidency on similar lines.

In their Notification No. 536-Law (General), dated the 15th February 1933, the Government of Madras also amended rule 1 of Part I of the Rules by the addition of the definition of "Port Officer".

In their Notification No. 4079-H. G., dated the 16th February 1933, the Government of North-West Frontier Province amended the conditions endorsed on forms H and I-I appended to the Petroleum Rules in force in the North-West Frontier Province so as to provide for the transport of dangerous petroleum in tank wagons by road.

36. In their notification No. 15-Mne., dated the 4th April 1932, the Government of Bengal, Marine Department, published the revised by-law regulating the landing and discharge of petroleum in the port of Calcutta made by the Commissioners for the port of Calcutta, at the suggestion of this Department, allowing petroleum and its products in quantities not exceeding 500 gallons for each consignment subject to certain conditions to be landed on the quays at the docks or jetties or discharged overside into boats or lighters between Garden House and Cossipore.

37. In their Notification No. 20-Mne., dated the 10th June 1932, the Government of Bengal, Marine Department, issued, in consultation with this Department, rules for regulating the towing of vessels carrying petroleum, other than dangerous petroleum, in bulk.

either alongside or astern, by inland steam or motor vessels and for the inspection of such vessels.

38. In connection with an enquiry from the Chief Controller of Standardization, Railway Department, with regard to the elimination of the insulation on Petrol Tank Wagons in use on Indian Railways, the Burmah Shell Oil Storage and Distributing Co. of India Ltd., Calcutta, at the request of this Department, carried out test runs and made comparisons between two tank wagons, one fitted with a hood and the other without a hood, during the year 1931 and also during the hot weather of 1932. It was found from these trials that during the hot weather the temperatures of the oil at destination in the uncovered wagon were in excess of the temperatures of the oil in the covered wagon by approximately 8 degrees at the top, 4 degrees in the middle and 3 degrees at the bottom. Also that the increase in temperature between the time of despatch and the time of receipt of the uncovered wagon at destination was approximately twice as great as that of the covered wagon. Further, the average increase of loss in the uncovered wagon over the covered wagon was approximately 10 gallons. The additional increase in temperature has proved to lead to greater evaporation and must tend to greater risk of conflagration. It was, therefore, recommended that insulation on Petrol Tank Wagons should not be dispensed with.

Owing to the difficulty felt in the complete discharge of petrol tank wagons the South Indian Railway Co., Ltd. proposed to fit up side cocks to such wagons, but in view of possible leakage due to damage to the cocks or pipe during transit or otherwise and that from cocks on account of defective valve fittings this Department did not agree to the proposal.

39. In order to prevent pilfering of petroleum from oil tanks during transit, it was suggested by the N. W. Railway that a scheme of riveting different openings of such tanks should be adopted. As the use of the rivets would necessitate their being heated and inserted while hot and then hammered, this Department did not agree to the scheme, but suggested that $\frac{1}{2}$ " or even $\frac{5}{8}$ " diameter bifurcated rivets should be used and should the bifurcations be not spread after passing through the holes they should be hammered flat.

40. This Department was consulted by the Eastern Bengal Railway with regard to the instructions which they proposed to issue for the discharge of petrol, kerosene and liquid fuel tank wagons at stations not provided with installations.

41. In reply to an enquiry from the Great Indian Peninsula Railway, it was stated that it had been found from experiment that there was no necessity for an air space to be left in filling receptacles with kerosene or liquid fuel.

42. In reply to a reference, the Postal Department was advised that Petroleum Oil should be treated as an inflammable liquid and, as such, coming under the category of "articles not transmissible by post".

43. In reply to an enquiry from Messrs. Havero Trading Co., Ltd., Calcutta, whether Verapol and Laventine K. B. come under the category of inflammable or explosive substances, it was stated that both the substances were inflammable and a license under the Indian Petroleum Act was necessary for the storage and transport of Verapol in quantities exceeding 500 gallons, but no license under the Act was necessary for Laventine K. B.
44. With reference to an enquiry from the Revenue Officer, Corporation of Madras, he was informed that Gasket Shellac did not come within the definition of "petroleum" as given in Section 2(a) of the Indian Petroleum Act and no license under the Act was necessary for its storage, etc.
45. In reply to an enquiry, the Postal Department was advised that Lithographic Varnish should be regarded as non-inflammable for postal purposes.
46. In their Notification No. 1035 Law (General), dated 22nd March 1933, the Government of Madras amended rules 2 and 6 of Part I of the Carbide of Calcium Rules in force in the Madras Presidency by the insertion of the words "the Deputy Conservator" after the words "the Port Officer" wherever they occurred.
47. On a reference from the Superintendent, Medical College Hospitals, Calcutta, regarding the site on which a room for storing X-Ray films, should be constructed on the roof of the Prince of Wales Hospital attached to Medical College Group of Hospitals, he was informed that the room should have a double roof and an air space in the wall to keep it as cool as possible. Also that any site would do provided it was away from any chimney or hot water tank.
48. In reply to an enquiry, the Postal Department was advised that only those films marked "Safety" should be transmitted by post without the possibility of any risk to the mails by fire and all other films treated as highly inflammable goods for transit in the post.
49. In reply to an enquiry from the Premier Clearing and Shipping Co., Karachi, it was stated that Collar Stiffeners made of celluloid should be treated as ordinary cargo if well and substantially packed.
50. On a reference received from the Commissioners for the Port of Calcutta, it was recommended that the substances should be treated as hazardous goods and landed at the docks or jetties in the same way as other hazardous goods.
51. A very large number of enquiries of a varied nature were received during the year from District Officials, private individuals, firms, Port authorities and Railways. These were all dealt with.

52. This Department was consulted by the Indian Railway Conference Association in connection with numerous amendments and additions to the rules contained in Red Pamphlet No. 10 (Rules and Rates for the conveyance of Explosives and other Dangerous Goods by Rail) and issue of Red Pamphlet No. 11.

Red Pamphlet.

53. The number of inspections done by this Department during the year was 2,129 and was less than that in the last year. The decrease was partly due to retrenchment in the grant for travelling allowances. To give some idea of the work and the ground covered, I give the following details of the work done by the Inspectors of Explosives :—

During the 12 months, 1st April 1932 to 31st March 1933, the four inspectors, viz., two at Calcutta and one each at Poona and Lahore, were away from their headquarters for 108, 81, 112 and 151 days and travelled 15,876, 20,052, 21,608 and 29,253 miles respectively.

The Chief Inspector and the temporary Chief Inspectors of Explosives were on tour for 71 days, travelled 12,572 miles and inspected 35 explosives magazines and 165 petroleum premises, and went on inspection duty to the Punjab and Burma Oil Fields and visited the ports of Calcutta, Bombay, Madras, Moulmein and Rangoon.

The ordinary inspection work of the officers of this Department has been considerably interfered with during the year under review owing to the number of times that they have been called away, or summoned to appear in Courts, in connection with criminal and other cases. Although the Government of India, Home Department, had requested all Local Governments to issue instructions to the prosecuting agencies in the courts of the provinces to restrict the issue of summonses on the Chief Inspector and Inspectors of Explosives for appearance in Magistrates' Courts to the minimum consistent with the requirements of a case and to press for taking their evidence on Commission in suitable cases, where it was necessary to have their evidence in such courts, the officers of this Department received a large number of summonses for appearance in Magistrates' Courts.

I have the honour to be,

SIR,

Your most obedient Servant,

L. NICKELS,

Chief Inspector of Explosives in India.

APPENDIX A.

List of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914, for the year 1932.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Assam . . .	Lakhimpur . .	5	...	5	5	...	5
	Naga Hills . .	1	...	1	1	...	1
	TOTAL . . .	6	...	6	6	...	6
Bengal . . .	Burdwan . . .	13	...	13	10	...	10
	Darjeeling . .	2	...	2	2	...	2
	Hooghly . . .	4	...	4	1	...	1
	Howrah . . .	1	...	1	1	...	1
	24-Parganas . .	2	...	2	1	...	1
	TOTAL . . .	22	...	22	15	...	15
Bihar and Orissa . . .	Gaya . . .	3	...	3	3	...	3
	Hazaribagh . .	17	...	17	13	...	13
	Manbhum . . .	31	...	31	28	...	28
	Sambalpur . .	1	...	1	1	...	1
	Santal Parganas . .	2	...	2	2	...	2
	Singhbhum . .	7	...	7	6	...	6
	TOTAL . . .	61	...	61	53	...	53

APPENDIX A—contd.

List of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914, for the year 1932—contd.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed	New.	TOTAL.
Bombay . . .	Aden . . .	5	...	5	4	...	4
	Ahmedabad . . .	4	...	4	4	...	4
	Bombay . . .	10	...	10	6	...	6
	Bombay Suburban.	5	...	5	5	...	5
	Broach . . .	1	...	1	1	...	1
	Dharwar . . .	1	...	1	1	...	1
	Karachi . . .	5	...	5	3	...	3
	Kol-ba . . .	1	...	1	1	...	1
	Panch Mahals . . .	2	...	2	2	...	2
	Poona . . .	1	...	1	1	...	1
	Ratnagiri . . .	1	...	1	1	...	1
	Surat . . .	2	...	2	2	...	2
West Khandesh . . .	1	...	1	1	...	1	
	TOTAL . . .	39	...	39	32	...	32
Burma . . .	Amherst . . .	1	...	1	1	...	1
	Bassein . . .	2	...	2	2	...	2
	Eanthawaddy . . .	4	...	4	2	...	2
	Magwe . . .	1	...	1	1	...	1
	Myitkyina . . .	1	...	1	1	...	1
	Northern Shan States.	9	...	9	5	...	5
	Pakoku . . .	...	1	1	...	1	1
	Pegu . . .	1	...	1	1	...	1
	Carried over . . .	19	1	20	13	1	14

APPENDIX A—contd.

List of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914, for the year 1932—contd.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Re-n ^e wed.	New.	TOTAL.
Burma—contd	Brought forward	19	1	20	13	1	14
	Tavoy . . .	6	...	6	4	...	4
	Thaton . . .	7	...	7	6	...	6
	Toungoo . . .	1	...	1	1	...	1
	TOTAL . . .	33	1	34	24	1	25
Central Provinces	Amraoti . . .	1	...	1	1	...	1
	Balaghat . . .	3	...	3	3	...	3
	Bhandara . . .	2	...	2	2	...	2
	Bilaspur . . .	1	...	1	1	...	1
	Chanda . . .	5	...	5	5	...	5
	Chhindwara . . .	5	1	6	5	1	6
	Jubbulpur . . .	2	...	2	2	...	2
	Nagpur . . .	5	...	5	5	...	5
	Raipur . . .	3	...	3	4	...	4
TOTAL . . .	27	1	28	28	1	29	

APPENDIX A—concl'd.

List of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914, for the year 1932—concl'd.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Madras	Chingleput	1	...	1	1	...	1
	Chittoor	2	...	2	2	...	2
	Coimbatore	1	...	1	1	...	1
	Guntur	2	...	2	2	...	2
	Madras	15	1	16	8	1	9
	Madura	3	...	3	3	...	3
	Nellore	2	...	2	1	...	1
	North Arcot	2	...	2	2	...	2
	South Arcot	4	1	5	4	1	5
	Tanjore	15	1	16	15	1	16
	Tinnevely	1	1	2	1	1	2
Trichinopoly	4	1	5	4	1	5	
Vizagapatam	3	...	3	2	...	2	
	TOTAL	55	5	60	46	5	51
Punjab	Attock	4	...	4	2	...	2
	Jhelum	2	...	2	2	...	2
	TOTAL	6	...	6	4	...	4
United Provinces	Meerut	1	...	1	1	...	1
	Shahjahanpur	1	...	1	1	...	1
	TOTAL	2	...	2	2	...	2

SUMMARY.

Presidency or Province.	MAGAZINES.			LICENSES.		
	Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Assam	6	...	6	6	...	6
Bengal	22	...	22	15	...	15
Bihar and Orissa	16	...	61	53	...	53
Bombay	39	...	39	32	...	32
Burma	33	1	34	24	1	25
Central Provinces	27	1	28	28	1	29
Madras	55	5	60	46	5	51
Punjab	6	...	6	4	...	4
United Provinces	2	...	2	2	...	2
TOTAL	251	7	258	210	7	217

APPENDIX B.

Summary of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II for the 10 years ending 1932.

YEAR.	MAGAZINES.			LICENSES.		
	Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
1923	245	13	258	199	13	212
1924	247	31	278	204	28	232
1925	263	16	279	218	14	232
1926	265	19	284	218	18	236
1927	247	13	260	207	13	220
1928	258	19	277	217	16	233
1929	264	14	278	221	14	235
1930	268	8	276	226	8	234
1931	267	9	276	223	9	232
1932	251	7	258	210	7	217

APPENDIX C.

Statement showing the imports of explosives by sea into British India from other countries in the year 1932.

Explosives.	Bengal.	Bombay.	Sind.	Burma.	Madras.	TOTAL.
<i>Quantity.</i>						
Gunpowder, black . lbs.	24,125	27,550	5,550	—	5,726	62,951
" smoke- " less.	3,285	800	1,000	—	560	5,645
Dynamite . . . "	35,000	—	5,000	12,500	15,000	67,500
Blasting gelatine . "	10,000	6,000	1,000	11,000	508,500	536,500
Gelignite or gelatine dynamite.	375,000	2,500	—	111,000	273,000	761,500
Other nitro-compound explosives. "	96,000	—	—	—	35,050	131,050
Detonators . No.	1,265,000	23,850	10,144	360,000	2,735,000	4,393,994
Fireworks . lbs.	183,993	1,407,013	22,466	50,104	217,463	1,881,039
TOTAL "	727,403	1,443,863	35,016	184,604	1,055,299	3,446,185
TOTAL No.	1,265,000	23,850	10,144	360,000	2,735,000	4,393,994
<i>Value in rupees.</i>						
Gunpowder, black .	24,290	16,749	3,496	—	3,498	48,033
" smokeless .	11,013	3,553	1,346	—	536	16,448
Dynamite	25,282	—	3,737	18,555	10,830	58,404
Blasting gelatine . .	8,570	5,253	884	9,405	4,35,055	4,59,167
Gelignite or gelatine dynamite.	2,60,022	2,040	—	90,860	2,06,074	5,58,996
Other nitro-compound explosives.	54,737	—	—	—	22,470	77,207
Detonators	53,886	3,632	1,291	18,872	43,621	1,21,302
Fireworks	1,22,093	4,71,128	25,160	24,098	1,35,958	7,78,437
TOTAL	5,59,893	5,02,355	35,914	1,61,790	8,58,042	21,17,99

APPENDIX D.

Comparative statement showing the imports of explosives by sea into British India from other countries for the ten years ending 1932.

Explosives.	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
Gunpowder, black . . . lbs.	124,659	340,886	361,255	299,440	178,550	164,100	111,680	127,875	71,750	62,951
„ smokeless . . . „	15,176	39,407	17,437	28,250	21,238	11,567	15,950	14,888	16,355	5,645
Dynamite . . . „	361,250	398,122	500,700	315,200	364,750	451,550	495,750	386,050	226,300	67,500
Blasting gelatine . . . „	640,250	486,900	457,995	316,050	271,500	410,800	492,800	245,500	390,850	536,500
Gelignite or gelatine dynamite . „	411,025	494,800	1,096,200	663,500	924,001	1,126,700	1,082,000	920,050	1,088,706	761,500
Other nitro-compound explosives „	160,577	...	80,350	75,250	150,025	130,000	221,500	203,000	142,400	131,050
Detonators No.	3,796,390	4,115,050	6,881,024	6,242,556	6,910,498	8,872,023	8,022,326	6,446,558	5,395,946	4,393,994
Fireworks lbs.	3,391,838	3,800,633	3,397,572	4,670,986	3,819,378	4,422,887	4,940,692	2,244,621	1,203,083	1,881,039
TOTAL . . „	5,113,775	5,560,748	5,911,509	6,668,676	5,729,742	6,717,604	7,360,372	4,141,984	3,145,144	3,446,185
TOTAL . . No.	3,796,390	4,115,050	6,881,024	6,242,556	6,910,498	8,872,023	8,022,326	6,446,558	5,395,946	4,393,994

APPENDIX E.

DEPARTMENT OF EXPLOSIVES.

NOTIFICATION.

Calcutta, the 18th April 1933.

No. E.-11 (1).—With reference to the following Notifications publishing rules to regulate the manufacture, possession, sale, transport and importation of explosives, the following list of "Authorised Explosives" referred to in the rule mentioned against each Notification is published for general information:—

- Rule 4 (3) of Notification No. 4013—33, dated the 6th June 1914, of the Government of India, Department of Commerce and Industry.
- Rule 4 (3) of Notification No. 1183, dated the 11th November 1914, of the Chief Commissioner, Central Provinces, applicable to Berar.
- Rule 4 (3) of Notification No. 14, dated the 23rd April 1915, of the Resident in Mysore applicable to the Civil and Military Station of Bangalore and on the Railways in Mysore under British jurisdiction.
- | | |
|---|---|
| Rule 4 (3) of Notification No. 67-J., dated the 28th August 1914, | } of the Resident at Hyderabad applicable to the Cantonments of Secunderabad and Aurangabad, the Hyderabad Residency Bazars and the Railway lands in the Hyderabad State. |
| Rule 4 (3) of Notification No. 34-J., dated the 20th April 1915, | |
- Rule 3 (3) of Notification No. 99, dated the 19th July 1916, as amended by Notification No. 41, dated the 30th July 1928, of the Government of Burma applicable to the Federated Shan States.
- Rule 3 (3) of Notification No. 5313, dated the 29th October 1918, of the Agent to the Governor General in Rajputana.
- Rule 3 (3) of Notification No. 1812-B., dated the 10th November 1919, of the Agent to Governor General in Central India, applicable to Railway lands in Central India, specified in the Notification of the Government of India in the Foreign Department No. 261-I.B., dated 10th February 1913.

LIST OF AUTHORISED EXPLOSIVES.

The following explosives are at present authorised for importation into British India for general sale:—

CLASS 1.—GUNPOWDER.

The term "gunpowder" means gunpowder ordinarily so-called.

GUNPOWDER.

CLASS 2.—NITRATE MIXTURE.

The term "nitrate mixture" means any preparation, other than gun-powder ordinarily so-called, formed by the mechanical mixture of a nitrate with any form of carbon or with any carbonaceous substance not possessed of explosive properties, whether sulphur be or be not added to such preparation, and whether such preparation be or be not mechanically mixed with any other non-explosive substance, and includes any explosive containing a perchlorate and not being a chlorate-mixture, fulminate or nitro-compound as defined in Rule 4 of the Indian Explosives Rules, 1914.

EVERY BLASTING EXPLOSIVE IN THIS CLASS, IN WHICH NITRATE OF AMMONIUM, NITRATE OF SODIUM OR CHLORIDE OF SODIUM ARE USED AS INGREDIENTS, SHALL BE CONTAINED IN CARTRIDGE WRAPPERS OR CASES (OR IN FIVE-POUND INNER PACKAGES) MADE THOROUGHLY WATERPROOF WITH MELTED PARAFFIN OR OTHER SUITABLE WATERPROOFING MATERIAL.

BOBBINITE.

Cardox Composition.

M Powder.	}
Pranada.	
Q Powder.	

CLASS 3.—NITRO-COMPOUND.

The term "nitro-compound" means any chemical compound possessed of explosive properties, or capable of combining with metals to form an explosive compound, which is produced by the chemical action of nitric acid (whether mixed or not with sulphuric acid) or of a nitrate mixed with sulphuric acid upon any carbonaceous substance, whether such compound is mechanically mixed with other substances or not.

The nitro-compound class has two divisions.

EVERY EXPLOSIVE IN THIS CLASS AND EVERY EXPLOSIVE INGREDIENT THEREOF SHALL BE SO THOROUGHLY PURIFIED AND OTHERWISE OF SUCH CHARACTER AS TO SATISFY A TEST KNOWN AS THE HEAT TEST, AND SPECIFIED IN THE RULE FOR TESTING EXPLOSIVES PUBLISHED WITH GOVERNMENT OF INDIA, DEPARTMENT OF COMMERCE AND INDUSTRY, NOTIFICATION No. 4013—33, DATED THE 6TH JUNE 1914, REFERRED TO ABOVE.

EVERY BLASTING EXPLOSIVE IN THIS CLASS, IN WHICH NITRATE OF AMMONIUM, NITRATE OF SODIUM, CHLORIDE OF SODIUM OR NITRO-GLYCOL ARE USED AS INGREDIENTS, SHALL BE CONTAINED IN CARTRIDGE WRAPPERS OR CASES (OR IN FIVE-POUND INNER PACKAGES) MADE THOROUGHLY WATERPROOF WITH MELTED PARAFFIN OR OTHER SUITABLE WATERPROOFING MATERIAL.

DIVISION 1.

Division 1 comprises the following explosives and any chemical compound or mechanically mixed preparation which consists either wholly or partly of nitro-glycerine or of some other liquid nitro-compound:—

Amazonite.	}	Cordite, M. D.	}
Brocalite Gelatine.		Du Pont Dynamite, 75	
Detonita.		per cent. Strength.	
Gelignite K. 34 per cent.,		Dynamit.	
N. G.		Dynamite.	
Glycerita.		Dynamite No. 1.	
L. G. Gelatine.		Red Star Dynamite, 75	
25 per cent. Ligdyn.		per cent. Strength.	
Ardeer Gelignite.		Dynobel No. 2.	
Arkite.		Dynobel No. 3. }	
Samsonita. }	Dynobel No. 4. }		
Samsonite. }	Farmers' Dynamite.		
A. 2 Monobel. }	Gelatine Dynamite.		
Viking Powder No. 1. }	Gelignite.		
Viking Powder No. 2. }	Monobel No. 1.		
Ballistite.	N. S. Gelatine Dynamite.		
Blasting Gelatine.	N. S. Gelignite.		
Cambrite.	Polar Dynobel No. 2.		
Chilworth Smokeless Powder No. 2. }	Quarry Monobel.		
Nacota Powder. }	Rockite.		
Cordite.	Samsonite No. 3.		
	Stonobel.		
	Victor Powder No. 2.		

PROVIDED THAT EVERY EXPLOSIVE IN THIS DIVISION SHALL BE OF SUCH CHARACTER AND CONSISTENCY AS NOT TO BE LIABLE TO LIQUEFACTION OR EXUDATION OF NITRO-GLYCERINE.

PROVIDED ALSO THAT AN EXPLOSIVE WHICH IS REQUIRED BY DEFINITION TO BE ISSUED IN WATERPROOF INNER PACKAGES MAY BE EXEMPTED FROM SUCH REQUIREMENT BY SPECIAL AUTHORITY, WHEN AND SO LONG AS THE CONDITIONS OF SUCH AUTHORITY ARE OBSERVED.

DIVISION 2.

Division 2 comprises the following explosives and any nitro-compound as before defined which is not comprised in division 1:—

Alumatol. }	}	Guncotton.
Ammonal. }		Negro Powder No. 2.
Amberite No. 2.		N. S. Smokeless.
Baelenite.		Picric Acid.
Di-nitro-phenol.		Picric Powder.
Economic Smokeless Sporting Powder. }		Roburite No. 4.
E. C. Sporting Powder. }		Ruby Powder.
Eley Smokeless Sporting Powder. }		Schultze Gunpowder.
Empire Powder. }		Smokeless Diamond.
Ideal Powder. }		Tonite or Cotton Powder.
Light Load Smokeless. }		Tri-nitro-toluol.
Nobel's Special Powder. }		

CLASS 4.—CHLORATE MIXTURE.

The term "chlorate mixture" means any explosive containing chlorate.

The chlorate mixture class has two divisions.

EVERY EXPLOSIVE IN THIS CLASS AND EVERY EXPLOSIVE INGREDIENT THEREOF SHALL BE SO THOROUGHLY PURIFIED AND OTHERWISE OF SUCH CHARACTER AS TO SATISFY A TEST KNOWN AS THE HEAT TEST, AND SPECIFIED IN THE RULE FOR TESTING EXPLOSIVES PUBLISHED WITH GOVERNMENT OF INDIA, DEPARTMENT OF COMMERCE AND INDUSTRY, NOTIFICATION No. 4013—33, DATED THE 6TH JUNE 1914, REFERRED TO ABOVE.

EVERY BLASTING EXPLOSIVE IN THIS CLASS, IN WHICH NITRATE OF AMMONIUM, NITRATE OF SODIUM OR CHLORIDE OF SODIUM ARE USED AS INGREDIENTS, SHALL BE CONTAINED IN CARTRIDGE WRAPPERS OR CASES (OR IN FIVE-POUND INNER PACKAGES) MADE THOROUGHLY WATERPROOF WITH MELTED PARAFFIN OR OTHER SUITABLE WATERPROOFING MATERIAL.

DIVISION 1.

Division 1 comprises any chlorate preparation which consists partly of nitro-glycerine or of some other liquid nitro-compound.

Nil

PROVIDED THAT EVERY EXPLOSIVE IN THIS DIVISION SHALL BE OF SUCH CHARACTER AND CONSISTENCY AS NOT TO BE LIABLE TO LIQUEFACTION OR EXUDATION OF NITRO-GLYCERINE.

DIVISION 2.

Division 2 comprises any chlorate mixture as hereinbefore defined which is not comprised in Division 1.

Nil.

CLASS 5.—FULMINATE.

The term "fulminate" means any chemical compound or mechanical mixture, whether included in the foregoing classes or not, which, from its great susceptibility to detonation, is suitable for employment in percussion caps or any other appliances for developing detonation, or which, from its extreme sensibility to explosion, and from its great instability (that is to say, readiness to undergo decomposition from very slight exciting causes), is especially dangerous.

This class consists of two divisions.

DIVISION 1.

Division 1 comprises such compounds as the fulminates of silver and of mercury, and preparations of those substances, such as are used in percussion caps; and any preparation consisting of a mixture of a chlorate with phosphorus or certain descriptions of compounds of phosphorus, with or without the addition of carbonaceous matter, and any preparation consisting of a mixture of a chlorate with sulphur, or with a sulphuret, with or without carbonaceous matter.

Nil.

DIVISION 2.

Division 2 comprises such substances as the chloride and the iodide of nitrogen, fulminating gold and silver diazobenzol, and the nitrate of diazobenzol.

Nil.

CLASS 6.—AMMUNITION.

The term "ammunition" means any explosive of any of the foregoing classes when the same is enclosed in any case or contrivance or is otherwise adapted or prepared so as to form a cartridge or charge for small-arms, cannon or any other weapon, or for blasting or to form any safety or other fuze for blasting or for shells, or to form any tube for firing explosives or to form a percussion cap, detonator, fog-signal, shell, torpedo, war-rocket, or any other contrivance other than a firework.

The term "percussion cap" does not include a detonator.*

The term "detonator" means a capsule or case which is of such strength and construction and contains fulminate in such quantity, that the explosion of one capsule or case would communicate the explosion to other like capsule or cases.

The term "safety fuze" means a fuze for blasting which burns and does not explode and which does not contain its own means of ignition, and which is of such strength and construction and contains an explosive in such quantity that the burning of such fuze will not communicate laterally with other like fuzes.

The ammunition class has three divisions.

DIVISION 1.

Nobel's Safety Electric
Time Fuzes.
Percussion Caps.
Railway Fog-Signals.

Safety Cartridges.
Safety Fuzes for blasting.
Safety Electric Fuzes.

* In consequence of the results of experiments carried out, it has been decided that a percussion cap can only be properly classed as such if it contains less than 0.6 grain of a composition of the 1st Division of the fifth (Fulminate) class of which not more than 25 per cent. consists of fulminate of mercury or less than 0.5 grain of any other explosive of the 1st Division of the 5th (Fulminate) Class; and it has been further decided that percussion caps shall not be classed as such when they contain anvils or have their composition unprotected by tin foil or other suitable substance, as under those circumstances they are liable to explode *en masse*.

DIVISION 2.

Division 2 comprises any ammunition as hereinbefore defined, which does not contain its own means of ignition, and is not included in Division 1.

Cartridges for Blasting or other like purposes.

Cartridges for Small Arms which are not Safety Cartridges.

Cordeau Bickford.

Electric Fuzes.

Electric Primers

Fuze Lighters.

Instantaneous Fuze.

Port Fires.

Tubes for firing Explosives.

Quick Match.

DIVISION 3.

Division 3 comprises any ammunition as hereinbefore defined which contains its own means of ignition, and is not included in Division 1.

Cartridges for Small Arms which are not Safety Cartridges.

Detonators.

Electric Detonators.

Friction Tubes.

Nobel's Electric Delay Action Detonators.

Percussion Primers.

Tubes for firing Explosives.

CLASS 7.—FIREWORK.

The term "firework" comprises firework composition and manufactured fireworks.

DIVISION 1.—FIREWORK COMPOSITION.

The term "firework composition" means any chemical compound or mechanically mixed preparation of an explosive or inflammable nature, which is used for the purpose of making manufactured fireworks, and is not included in the former classes of explosives, and also any star and any coloured fire composition subject to the proviso to the definition of manufactured fireworks.

Nil.

DIVISION 2.—MANUFACTURED FIREWORKS.

MANUFACTURED FIREWORKS, consisting of any explosive of the classes 1, 2, 3, 4 and 6 and any firework composition, when such explosive or composition is enclosed in any case or contrivance or is otherwise manufactured so as to form a squib, cracker including Chinese crackers, toy cap or amorce, serpent, rocket (other than a war-rocket), maroon, lance, wheel, Chinese fire, Roman candle, or other article specially adapted for the production of pyrotechnic effects, or pyrotechnic signals or sound signals.

Provided that a substantially constructed and hermetically closed metal case, containing not more than one pound of coloured fire composition of such a nature as not to be liable to spontaneous ignition shall be deemed to be a "manufactured firework" and not a "firework composition".

Aluminium Torches. }
 Electric Sparklers. }
 Magnesium Torches. }

Amorces.

Chinese Crackers.

Light Signals,

Manufactured Fireworks.

Pyrotechnic Matches.

Rockets.

Sparklers.

L. NICKELS,

Chief Inspector of Explosives in India.

DIVISION 2.—MANUFACTURED FIREWORKS

MANUFACTURED FIREWORKS, consisting of any explosive of the
nature of gunpowder, or any other explosive, which is used
in connection with any form of communication or other
purpose, or to form a part of any other apparatus, or
any other article, or other article, or other article,
the production of which is regulated by law.

It is provided that a person who manufactures or
uses, or who has in his possession, any such
explosive, shall be liable to the penalties herein
provided, unless he can show that he has
obtained the same from a person who is
licensed to manufacture the same.

Manufactured Fireworks,
Explosive Substances,
Explosive Compounds.

Explosives

Chinese Fireworks

Light Signals

Hand-lit Fireworks

Novelty Fireworks

Explosives

Explosives

L. W. WATKINS,
Chief Inspector of Explosives in this
State.

APPENDIX F.

*List of petroleum premises licensed during the year 1932.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Ajmer-Merwara .	Ajmer	37	Bengal—concl'd.	Brought forward . .	213
	TOTAL	37		Calcutta	251
Andaman and Nicobar Islands.	Port Blair	2		Chittagong	37
	TOTAL	2		Dacca	64
Assam	Cachar	22		Darjeeling	67
	Darrang	16		Dinajpur	12
	Goalpara	29		Faridpur	54
	Kamrup	32		Hooghly	29
	Khasi and Jaintia Hills.	4		Howrah	66
	Lakhimpur	40		Jalpaiguri	46
	Naga Hills	6		Jessore	22
	Nowgong	13		Khulna	31
	Sibsagar	37		Malda	7
	Sylhet	80		Midnapur	78
TOTAL	279	Murshidabad . . .		32	
Baluchistan	Loralai	6		Mymensingh	47
	Quetta	25		Nadia	43
	Sibi	11		Noakhali	11
	Zhob	8		Pabna	19
	TOTAL	50		Rajshahi	36
Bengal	Backerganj	39		Rangpur	62
	Bankura	24		Tippera	49
	Birbhum	20	24-Parganas	101	
	Bogra	31	TOTAL	1,377	
	Burdwan	99	Angul	3	
	Carried over	213	Bihar and Orissa { Balasore	22	
			Carried over	25	

* This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

APPENDIX F—contd.

*List of petroleum premises licensed during the year 1932—contd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Bihar and Orissa —concl'd.	Brought forward . . .	25	Bombay—concl'd.	Brought forward . . .	194
	Bhagalpur . . .	67		Bombay . . .	300
	Champanan . . .	32		„ Suburban . . .	1
	Cuttack . . .	21		Broach . . .	19
	Darbhanga . . .	46		Dharwar . . .	99
	Gaya . . .	61		Hyderabad (Sind) . . .	10
	Hazaribagh . . .	57		Kaira . . .	56
	Manbhum . . .	78		Kanara . . .	35
	Monghyr . . .	62		Karachi . . .	65
	Muzaffarpur . . .	48		East Khandesh . . .	90
	Palamanu . . .	19		West Khandesh . . .	24
	Patna . . .	91		Kolaba . . .	27
	Puri . . .	17		Kolhapur . . .	8
	Purnea . . .	35		Larkana . . .	6
	Ranchi . . .	34		Nasik . . .	78
	Sambalpur . . .	25		Panch Mahals . . .	11
	Saran . . .	41		Poona . . .	97
Shahabad . . .	86	Ratnagiri . . .	89		
Singhbhum . . .	53	Satara . . .	39		
Sonthal Parganas . . .	44	Sholapur . . .	43		
TOTAL . . .	942	Sukkur . . .	10		
Bombay . . .	Aden . . .	32	Surat . . .	35	
	Ahmedabad . . .	65	Thana . . .	33	
	Ahmednagar . . .	31	TOTAL . . .	1,366	
	Belgaum . . .	55	Burma . . .	Amberst . . .	17
	Bijapur . . .	11		Bassein . . .	4
Carried over . . .	194	Carried over . . .	21		

*This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

APPENDIX F—contd.

*List of petroleum premises licensed during the year 1932—contd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
	Brought forward .	21		Brought forward .	367
	Bhamo	3	Burma—conold.	Thaton	7
	Hanthawaddy	8		Thayetmyo	13
	Insein	3		Upper Chindwin	3
	Katha	3		Yamethin	7
	Kyaukse	1		TOTAL	397
	Lower Chindwin	8			
	Magwe	60	Central India	Bhopal (Ry. land)	7
	Mandalay	14		TOTAL	7
	Maubin	7		Akola	69
	Meiktila	12		Amraoti	75
	Mergui	11		Balaghat	15
	Minbu	22		Betul	12
Burma—contd.	Myaungmya	12		Bhandara	44
	Myingyan	6		Bilaspnr	35
	Myitkyina	9		Buldana	61
	Northern Shan States	15		Chanda	29
	Pakoku	20	Central Pro- vinces.	Chhindwara	22
	Pegu	26		Damoh	6
	Prome	10		Drug	17
	Rangoon	56		Hoshangabad	41
	Sagaing	2		Jubbulpore	44
	Sandoway	3		Mandla	7
Southern Shan States	10		Nagpur	78	
Tavoy	15		Narsingpur	5	
Tharrawaddy	10		Nimar (Khandwa)	23	
Carried over	367		Raipur	40	
			Carried over	643	

* This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which department has cognizance.

APPENDIX F—contd.

*List of petroleum premises licensed during the year 1932—contd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.	
	Brought forward	643		Brought forward	536	
Central Provinces—concl'd.	Saugor . . .	10	Madras—concl'd.	Madras . . .	89	
	Seoni . . .	10		Madura . . .	82	
	Wardha . . .	35		Malabar . . .	135	
	Yeotmal . . .	62		Nellore . . .	35	
	TOTAL	760			The Nilgiris . . .	44
Coorg . . .	Coorg . . .	13			North Arcot . . .	83
	TOTAL	18			Ramnad . . .	98
Delhi . . .	Delhi . . .	77			Salem . . .	50
	TOTAL	77			South Arcot . . .	66
Hyderabad	Hyderabad . . .	37			South Kanara . . .	71
	Secunderabad . . .	50			Tanjore . . .	95
	TOTAL	87			Tinnevely . . .	37
				Trichinopoly . . .	54	
Madras . . .	Anantapur . . .	28		Vizagapatam . . .	55	
	Bellary . . .	25		TOTAL	1,529	
	Chingleput . . .	40	Mysore . . .	Bangalore . . .	47	
	Chittoor . . .	35		TOTAL	47	
	Coimbatore . . .	113		Bannu . . .	3	
	Cuddapah . . .	12	North-West Frontier Province.	Dera Ismail Khan . . .	8	
	Ganjam . . .	34		Hazara . . .	27	
	East Godavari . . .	65		Kohat . . .	16	
	West Godavari . . .	44		Peshawar . . .	70	
	Guntur . . .	52		TOTAL	124	
Kistna . . .	48					
Kurnool . . .	40					
	Carried over	536				

* This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

APPENDIX F—contd

*List of petroleum premises licensed during the year 1932—contd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Punjab .	Ambala	59	Rajputana	Jaipur (Ry. Land)	2
	Amritsar	23		Alwar (")	2
	Attock	20		TOTAL	4
	Dera Ghazi Khan	6		Agra	40
	Ferozepore	15	Aligarh	45	
	Gujranwala	23	Allahabad	53	
	Gujrat	22	Almora	2	
	Gurdaspur	48	Azamgarh	20	
	Gurgaon	20	Bahraich	14	
	Hissar	26	Ballia	9	
	Hoshiarpur	9	Banda	16	
	Jhelum	11	Bara Banki	21	
	Jullundur	20	Bareilly	23	
	Kangra	5	Basti	29	
	Karnal	31	Benares	47	
	Lahore	64	Bijnor	10	
	Ludhiana	25	Budaun	8	
	Lyallpur	39	Bulandshahr	26	
	Mian Wali	6	Cawnpore	51	
	Multan	7	Dehra Dun	32	
	Muzaffargarh	5	Etah	9	
	Patiala	5	Etawah	19	
	Rawalpindi	72	Farrukhabad	40	
	Shahpur	13	Fatehpur	11	
	Sheikhupura	20	Fyzabad	11	
	Sialkot	20	Garhwal	7	
	Simla	2	Ghazipur	7	
TOTAL	621	United Provin- ces.	Carried over	550	

*This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

APPENDIX F—concl'd.

* List of petroleum premises licensed during the year 1932—concl'd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
	Brought forward .	550			
United Provin- ces—concl'd.	Gonda	37			
	Gorakhpur	26			
	Hamirpur	9			
	Jalaun	5			
	Jaunpur	1			
	Jhansi	36			
	Kheri	22			
	Lucknow	62			
	Mainpuri	25			
	Meerut	51			
	Mirzapur	33			
	Moradabad	18			
	Muttra	20			
	Muzaffarnagar	21			
	Naini Tal	14			
	Partabgarh	20			
	Pilibhit	3			
	Rae Bareilly	15			
	Saharanpur	38			
	Shahjahanpur	10			
Sitapur	21				
Sultanpur	15				
Unao	8				
	TOTAL .	1,062			

*This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

SUMMARY.

Presidency or Province.	No.
Ajmer-Merwara	37
Andaman and Nicobar Islands	2
Assam	279
Baluchistan	50
Bengal	1,377
Bihar and Orissa	942
Bombay	1,366
Burma	397
Central India	7
Central Provinces	760
Coorg	13
Delhi	77
Hyderabad	87
Madras	1,529
Mysore	47
North-West Frontier Province	124
Punjab	621
Rajputana	4
United Provinces	1,062
TOTAL	8,781

APPENDIX G.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932.

EXPLOSIVES.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
1	15th June 1932.	Gun-powder.	Talpara, Bilaspur District.	Three persons employed by a holder of a license in Form A of the Indian Explosives Rules were sitting in a line on a sack cloth near a pot containing the ingredients and were pounding them. At about 3 P. M., they stopped work for a rest. One of them after smoking a <i>bidi</i> was extinguishing it by rubbing it on the sack cloth when the grains of powder lying scattered near about the sack cloth caught fire and an explosion occurred, injuring them all. Two of them died later.	2	1
2	17th June 1932.	Ditto	Hadapsar, Poona District.	While blasting operations were in progress, a piece of stone weighing about 2 lbs. flew and struck a person at a distance of 160 yards who succumbed to his injuries.	1	...
Total					3	1
3	18th Oct. 1932.	Fulminate	21-A, Beniapukur Lane, Calcutta.	A boy filled a gaspipe with an explosive mixture of fulminate class, which, when lighted, exploded, causing injuries to him.	...	1
4	29th Oct. 1932.	Ditto	Halla, Sind	A person put some chlorate of potash and some other powders in a stone bottle and set fire to the powder expecting to cause a loud explosion, in an open space in front of his shop. The bottle burst into pieces which flew in different directions, hitting him and other spectators. As a result of this he and two others died on the spot, one person died later and 10 other persons received injuries. The mixture was probably of fulminate class.	4	10

APPENDIX G.—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
5	22nd May 1932.	Bomb	Koillpatti, Tiανεvelly District.	Two persons were injured in front of the Booking Office as a result of an explosion of what was probably a bomb which fell from a man, who was walking in advance of them, when train No. 24 was sighted at the Railway Station and while passengers were proceeding to the train platform from the passengers' shed.	...	2
6	27th Oct. 1932	Ditto	3/4, Gauribari Lane, Calcutta.	While a boy was preparing throw-down bombs with a mixture of potassium chlorate, saltpetre and red sulphide of arsenic, the mixture suddenly exploded, causing injuries to him. The boy was prosecuted, convicted and sentenced to pay a fine of Rs. 15 or in default 10 days' rigorous imprisonment.	...	1
7	29th Oct. 1932.	Ditto	6, Srish Choudhury Lane, Calcutta.	A boy received injuries on his hand by the explosion of throw-down bombs which he was preparing with a mixture of red sulphide of arsenic and potassium chlorate. The vendor of the ingredients was prosecuted and sentenced to pay a fine of Rs. 15 or in default 10 days' rigorous imprisonment.	...	1
TOTAL					4	15
8	4th Feb. 1932.	Ammunition (Detonator).	Quetta	A wood contractor purchased on 29th January 1932 several empty cartridge boxes in an auction from 31 Squadron R. A. F., Quetta, and dumped them in a wooden godown. Some unserviceable and serviceable detonators which got mixed up with the empty cartridges, were dislodged from one of the	...	1

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932—contd.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
				boxes. On the day of occurrence an employee of the contractor picked up one detonator and started removing explosive from it by means of a nail when it suddenly exploded, causing injuries to his hands and feet.		
9	1st Apl. 1932.	Ammunition.	Worli, Bombay.	A person found a live cartridge (presumably a revolver cartridge) near the stair-case of the chawl where he used to reside. While he was attempting to remove the lead from the cartridge with a piece of iron, the cartridge exploded, injuring both his hands.	...	1
				TOTAL	...	2
10	26th Jan. 1932.	Fireworks	Bombay	A person was preparing crackers by using a mixture of chlorate of potash and sulphur and pieces of stone when an explosion occurred as a result of which he was injured. He was prosecuted, convicted and sentenced to pay a fine of Rs. 10 or in default to suffer one month's rigorous imprisonment.	...	1
11	2nd Mar. 1932.	Ditto	Dibrugarh.	A person was employed by a holder of a license in form A of the Indian Explosives Rules, 1914, for the manufacture of fireworks. He prepared some bamboo sticks, rope and paper and went with a servant of the licensee to the licensed premises to bring out some explosive materials. As old chlorate of potash was found bad the manufacturer fetched a hammer and a nail puller from the licensee's shop to open a new barrel and took out some chlorate of potash, some arsenic sulphide,	1	1

APPENDIX G—*contd.*

*Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932—
contd.*

EXPLOSIVES—*contd.*

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
12	30th Aug. 1932.	Fireworks	Popatiwad, Ahmedabad.	<p>a sieve and an iron mortar from the premises. He also took out an old bucket containing a layer of chlorate of potash and arsenic sulphide, apparently remnant of a mixture used on a former occasion, and wanted to throw it away. The servant did not allow him to do so and took the bucket from him, went a few paces ahead and threw the bucket on the ground to dislodge the mixture from it. The manufacturer asked the servant not to do so but the latter paying no heed to it struck the bucket with a hammer. The manufacturer proceeded towards him to take away the bucket and was only about 8 or 9 cubits away when the servant struck the bucket again with the result that an explosion took place, causing serious injuries to both of them. The servant succumbed to his injuries later. The license was cancelled and the licensee was prosecuted, convicted and sentenced to pay a fine of Rs. 120.</p> <p>A licensee with his family members and 7 labourers was, contrary to the conditions of the license, manufacturing fireworks at his house. At about 1 P.M., they were filling paper cases with a mixture of chlorate of potash, sulphur and charcoal and pressing the mixture with a thin iron rod, when an explosion took place. The roof and walls of the house fell in and the building took fire. All the persons and also a milkmaid who went there to deliver milk, were buried under the debris and burnt to death, except one</p>	15	1

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932—contd.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
13	12th Sep. 1932.	Fireworks	Dharwar	<p>of the wives of the licensee who was removed to hospital where she died the same night. A child who was playing at a distance of about 7 yards from the house was also burnt on her hand and feet.</p> <p>Two contiguous shops were licensed to two persons for the storage of fireworks. They were also used for the storage of arms, ammunition and grocery. Between 12 and 1 P.M. on the day of occurrence while one of the licensees had gone to his house for meals and his two servants were present in the shop, a customer came and asked for certain articles. One of the servants went to the store room in another lane to bring the articles. While he was away and the customer and the other servant were in the shop, the latter noticed smoke coming from inside. He immediately went inside to extinguish the fire. Seeing the fire growing, the customer went in to save the servant, but his clothes caught fire and he was severely injured. In the meantime, the people who had collected there to extinguish the fire, removed the roof and threw earth on the fire. The servant was buried under the debris and his body was found next day. The fire spread to the adjoining licensed shop and the person who was sitting in it also received severe injuries. The injured persons were removed immediately to Hospital where they died the next morning. The fire was due to one of the persons smoking.</p>	3	...

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932—contd.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
14	6th Oct. 1932.	Fireworks	Madhab Chatterjee Lane, Calcutta.	A cobbler was standing before the house of a person to receive payment when a young man set fire to a firework bomb and went away. The bomb burst and struck the cobbler in the abdomen, causing injuries to him.	...	1
15	27th Oct. 1932.	Ditto	Sitapurhat, Hooghly District.	A passenger was carrying with him a bundle of crackers in a 3rd class compartment on the Howrah-Amta Light Railway. The crackers caught fire from a lighted <i>bidi</i> thrown accidentally close to the bundle and exploded, as a result of which 5 persons were injured. One of them succumbed to his injuries in the hospital later.	1	4
16	28th Oct. 1932.	Ditto	Peary Das Lane, Calcutta.	Two persons were engaged in preparing <i>tubris</i> with a mixture of potassium nitrate, sulphur, iron dust and charcoal. While one of them was testing a <i>tubri</i> by setting fire to it, ingredients which were lying nearby, all of a sudden, caught fire and exploded, causing injuries to him and also to the other person who was watching the test.	...	2
17	29th Oct. 1932.	Ditto	49/1, Haldarpara Road, Calcutta.	Two persons were engaged in manufacturing fireworks. While they were tying the latter up one suddenly exploded and caused injuries to both of them.	...	2
18	29th Oct. 1932.	Ditto	17, Sambhu Nath Pandit Street, Calcutta.	Three boys were preparing <i>tubris</i> on the terrace of a premises with a mixture of chlorate of potash, lac and aluminium dust. The mixture suddenly exploded, causing injuries to them. One subsequently succumbed to his injuries.	1	2

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932—contd.

EXPLOSIVES—concl'd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
19	29th Oct. 1932.	Fireworks	49, Beninandon Street, Calcutta.	A person was grinding a mixture of sugar, aluminium powder and potassium chlorate in a stone dish with a view to manufacturing "Flying Tubris". The mixture suddenly exploded and caused injuries to him.	...	1
20	31st Oct. 1932.	Ditto	46/2, Monshatolla Road, Kidderpore, Calcutta.	A person was mixing aluminium powder and potassium chlorate on a piece of wood with a stone for the manufacture of Tubris when the mixture exploded, causing extensive burns all over his body. He died in hospital later.	1	...
21	19th Nov. 1932.	Ditto	6, Sambhu Nath Pandit Lane, Calcutta.	A boy was setting fire to a Tubris when it accidentally burst and caused injuries to him.	...	1
22	19th Dec. 1932.	Ditto	38, Utdanga Main Road, Calcutta.	While a person after putting some mixture of potassium chlorate and sugar in a small iron pipe was pressing it with a thin iron rod the pipe burst and pieces struck and injured him.	...	1
Total					22	17

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932—
contd.

PETROLEUM.

No.	Date of accident.	Nature of Oil.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
1	19th Sept. 1932.	Petrol	64, Barrack-pore Trunk Road, Calcutta.	A bus was jacked up on a pillar of bricks for having its tyre changed. The bricks gave way and the bus capsized, the petrol tank being damaged. Petrol which leaked from the tank flowed to a hurricane lamp which was being used, and caught fire. As a result of this a person who was assisting and standing nearby, received injuries to which he succumbed subsequently.	1	...
2	7th Oct. 1932.	Crude Oil	Khaur	One person received very extensive burns owing to the fire caused by an explosion in the Booster Pump Station of the Attock Oil Company, and subsequently succumbed to his injuries. The deceased, who was an engine driver in the Station, and his cleaner stayed in the station at night as Chowkidars and ran engine and pump during the day only. There was a certain amount of gas and oil about. It appeared that the cleaner tried to light up a <i>hukka</i> and the gas caught fire.	1	...
3	23rd Nov. 1932.	Petrol	Puttur, South Kanara Distt.	The underground petrol tank of the Burmah Shell Oil Storage & Distg. Co. of India Ltd. situated in the premises of the C. P. C. Co., Ltd., was to be removed to Mangalore. It was empty and cleaned with cotton waste. The tank was taken out of its pit with the assistance of many persons, including the employees of the Companies, coolies and passers-by, and kept on the ground with its manhole open. One of the persons approached the tank with a lighted <i>bidi</i> and threw	7	8

APPENDIX C—*contd.*

*Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932—
contd.*

PETROLEUM—*concl'd.*

No.	Date of accident.	Nature of Oil.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
4	23rd Dec. 1932.	Petrol	30, Garden Reach Road, Calcutta.	<p>the stump into it. This ignited petrol vapour still present in the tank and the latter exploded, causing severe injuries to 15 persons, seven of whom died later.</p> <p>The driver of a bus had not stopped his engine when petrol was being filled in the tank of the bus from a kerbside pump in consequence of which the engine caught fire. During the course of an attempt to extinguish the fire, the driver and a servant attached to the petrol pump station were burnt. The driver was prosecuted, convicted and sentenced to pay a fine of Rs. 8 or in default 8 days' simple imprisonment.</p>	...	2
TOTAL .					9	10

APPENDIX G—concl'd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1932 to 31st December 1932.

MISCELLANEOUS.

No.	Date of accident.	Nature of substance.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS	
					Killed.	Injured.
1	24th July 1932.	Carbide of Calcium.	33, South Road, Entally, Calcutta.	A servant of a holder of a license to possess and sell 112 lbs. of Carbide of Calcium took an empty barrel of Carbide of Calcium to a bathroom attached to the licensed shop for cleaning the residuary powder. He left the barrel under the water tap and came out to smoke a <i>biri</i> . After lighting the <i>biri</i> he entered the bath room and began cleaning the barrel when the residue caught fire and exploded, causing burns all over his face.	...	1
2	4th Aug. 1932.	Do.	Calcutta	A person purchased 20 lbs. of Carbide of Calcium from a shop and put it in a tin having a cover. A mistry working in the shop was soldering the cover after applying muriatic acid and leaf-tin on it, when the tin burst and the contents caught fire, as a result of which he received injuries to his face and hands.	...	1
TOTAL					...	2

APPENDIX H.

Summary of accidents during the year 1932.

Explosives or dangerous and inflammable substances.	ACCIDENTS CAUSING LOSS OF LIFE AND BODILY INJURY.			Accidents not causing loss of life or bodily injury.	Total number of accidents.
	Number of accidents.	NUMBER OF PERSONS			
		Killed.	Injured.		
<i>Explosives.</i>					
Gunpowder . . .	2	3	1	...	2
Nitro-compounds . .	...	...	...	...	...
Chlorate Mixture . .	...	...	...	...	...
Fulminates . . .	5	4	15	...	5
Ammunition . . .	2	...	2	...	2
Fireworks . . .	13	22	17	...	13
Liquid Oxygen . . .	...	...	...	...	...
TOTAL . . .	22	29	35	...	22
<i>Petroleum.</i>					
Petroleum generally . .	4	9	10	...	4
TOTAL . . .	4	9	10	...	4
Chemicals . . .	...	...	...	...	...
TOTAL . . .	...	...	...	...	...
Miscellaneous . . .	2	...	2	...	2
TOTAL . . .	2	...	2	...	2
GRAND TOTAL . . .	28	38	47	...	28

APPENDIX I.

Detailed statement showing the number of accidents and persons killed and injured during the ten years ending 1932.

Year.	GUNPOWDER.			DYNAMITE AND OTHER NITRO-COMPOUND BLASTING EXPLOSIVES.			CHLORATE MIXTURE.			FULMINATE.			AMMUNITION.			FIREWORKS.			LIQUID OXYGEN EXPLOSIVES.		
	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.
1923 . . .	17	36	19	...	...	...	...	...	...	5	9	16	6	...	7	6	18	15	...	...	...
1924 . . .	7	27	11	1	1	...	...	...	...	7	4	7	...	...	...	17	14	12	...	...	...
1925 . . .	9	19	11	3	2	11	...	...	...	8	...	10	3	...	17	13	9	9	...	...	...
1926 . . .	9	27	36	1	...	2	...	...	...	12	5	23	2	...	7	16	20	34	...	...	...
1927 . . .	8	5	7	2	8	18	...	...	...	6	1	22	3	1	4	23	16	20	...	...	...
1928 . . .	14	12	17	3	1	10	...	...	...	5	...	5	3	...	3	10	7	63	...	...	...
1929 . . .	6	21	4	1	1	...	...	...	...	2	1	1	1	...	1	6	11	13	1	3	...
1930 . . .	4	7	1	2	1	6	...	...	...	4	...	7	3	1	8	30	42	36	...	...	...
1931 . . .	9	16	13	3	1	4	...	...	...	2	...	3	2	...	3	11	12	60	...	...	...
1932 . . .	2	3	1	...	...	...	...	...	...	5	4	15	2	...	2	13	22	17	...	...	...
TOTAL .	85	173	120	16	15	51	...	...	...	56	24	109	25	2	52	145	171	279	1	3	...
AVERAGE	8	17	12	2	1	5	...	...	...	6	2	11	2	1	5	14	17	28	1	1	...

APPENDIX I—concl'd.

Detailed statement showing the number of accidents and persons killed and injured during the ten years ending 1932—concl'd.

Year.	PETROLEUM.			CHEMICALS.			MISCELLANEOUS.		
	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.
1923	8	5	11	..	..	..	2	1	1
1924	8	6	8	2	3	5	1	3	..
1925	8	8	15	2	..	10	3	..	1
1926	6	5	18	..	..	..	3	..	8
1927	9	5	8	2	..	9	1	..	..
1928	9	61	26	1	..	3	2	2	1
1929	16	26	28	..	..	..	4	1	5
1930	8	2	11	..	..	..	1	..	1
1931	10	19	6	..	..	..	1	..	1
1932	4	9	10	..	..	..	2	..	2
TOTAL	86	146	141	7	3	27	20	7	20
AVERAGE	9	15	14	1	1	3	2	1	2

APPENDIX J.

Comparative statement showing the number of accidents and persons killed and injured during the ten years ending 1932.

Year.	ACCIDENTS CAUSING LOSS OF LIFE OR BODILY INJURY.			Accidents not causing loss of life or bodily injury.	Total number of accidents.
	Number of accidents.	NUMBER OF PERSONS.			
		Killed.	Injured.		
1923	39	69	69	5	44
1924	40	58	43	3	43
1925	45	38	84	4	49
1926	49	57	128	..	49
1927	49	36	88	5	54
1928	46	83	128	1	47
1929	37	64	52	4	41
1930	52	53	70	..	52
1931	37	48	90	1	38
1932	28	38	47	..	28
TOTAL	422	544	799	23	445
AVERAGE	42	54	80	2	44



