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Indian Explosives Act (IV of 1884)
Indian Petroleum Act (VIII of 1899)

THIRTY-SECOND ANNUAL REPORT
OF THE
Chief Inspector of Explosives
in India

Being his Annual Report for the year ending 31st March 1931.

1931

14462



CALCUTTA : GOVERNMENT OF INDIA
CENTRAL PUBLICATION BRANCH

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

No. G.-52.

FROM

DR. N. L. SHELDON, Ph.D., F.I.C.,

Chief Inspector of Explosives in India,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,

DEPARTMENT OF INDUSTRIES AND LABOUR,

NEW DELHI.

Calcutta, 13th October 1931.

20th November

SIR,

I have the honour to submit herewith a report of the work of the Department of Explosives during the year ending 31st March 1931.

2. Mr. P. W. Alloway, F.C.S., Inspector of Explosives, Calcutta, was granted leave out of India on average pay for seven months with effect from the afternoon of the 21st March 1930. On return from leave he took over charge of his duties on the forenoon of the 22nd October 1930.

Dr. M. K. Maitra, Ph.D. (Lond.), A.I.C., A.R.C.S., D.I.C., B.Sc. (Lond.) was appointed to officiate as an Inspector of Explosives with effect from the 5th April 1930, *vice* Mr. P. W. Alloway granted leave out of India.

Mr. P. W. Alloway, F.C.S., was posted as Inspector of Explosives, Northern India, with headquarters, at Lahore and assumed charge of his duties with effect from the 1st November 1930.

In order to cope with the additional work devolved on this Department two temporary posts of Inspectors of Explosives on Rs. 450 and Rs. 350 per mensem with headquarters at Calcutta were created by the Government of India from the 22nd October 1930 and the 19th March 1931 respectively upto the 3rd November 1931. Dr. M. K. Maitra was appointed to the former and Mr. B. N. Pal, M.Sc., Temporary Assistant Chemical Examiner, Bengal, to the latter.

Explosives.

3. During the year 1930, 234 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 licensed was 276 or two less than in 1929, 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. A

statement showing the number and location of the magazines and also the number of licenses granted in British India during the year 1930 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, 176 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 when involving considerable expense, and my thanks are due to them for making my duties easy in this respect.

Condition of magazines.

6. The physical condition of all the explosives in the different magazines during the year was found to be good with the following exceptions, which were found to have become defective and were destroyed:—

(a) 2,550 lbs. of Blasting Gelatine	} (damaged by water during the cyclone of November 1930) from the magazine of Messrs. Best and Co. Ltd., Agents, Messrs. Nobel's Explosives Company Limited, at Korukupett.
1,300 lbs. of Gelignite	
1,700 lbs. of Gelatine Dynamite	
12,500 Detonators No. 3	
7,500 Detonators No. 6	
and	
91 cases of Fuse	

(b) 25 cases weighing about 3,200 lbs. of Manufactured Fireworks (damaged by water during the cyclone of November 1930) from the magazine of Mr. C. Rangamannar Chetty at Perambur.

(c) One case containing 24½ lbs. of Sporting Ballistite from the magazine of the Calcutta Port Commissioners at Moyapore.

(d) 38 cases of Gunpowder and 29 cases, 8 Jottis and a few loose packets of Manufactured Fireworks (damaged by water during the cyclone of November 1930) from the magazine of the Madras Port Trust at Madras.

(e) 248 cartridges of 1" Gelignite	} from the magazine of the Bombay, Baroda and Central India Railway Company at Neemuch.
and	
27 coils of Fuse	

(f) 660 cartridges of Gelignite from the Great Indian Peninsula Railway's magazine at Amla.

Thefts.

7. During the year under report one case of theft of explosives was reported to this office.

Two thousand and seventy-one tons of explosives were imported into British India during the year 1930, the value being Rs. 26,13,808. Full details showing the different kinds of explosives imported, and the value of each are given in

Import of explosives.

Appendix C. A comparative statement showing the quantity of explosives imported during the last 10 years is given in Appendix D.

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. Two licenses granted by the Governor General in Council for the manufacture of gunpowder in the Central Provinces were renewed and a new license for the manufacture of gunpowder in the District of Manbhūm in Bihar and Orissa was granted during the year.

Manufacture of Explosives.

The license granted by the Governor General in Council for the manufacture of Pranaḍa (M. & Q. Powder)—an explosive of 2nd (Nitrate-mixture) class—in the Burdwan District in Bengal for demonstration purposes was also renewed.

As the Lightfoot Refrigeration Co., Ltd., Bombay, failed to apply within the prescribed date for the renewal of the license granted to them by the Governor General in Council for the manufacture of liquid oxygen explosives in the whole of British India for demonstration purposes for the year 1930 a fresh license was granted to them for the year 1931.

Petroleum.

11. During the year under report, 3,578 licenses for the storage of dangerous and non-dangerous petroleum, regarding which this Department was concerned or consulted, were granted. A list of these premises, corrected up to 31st December 1930 and showing the districts in which they are located, is given in Appendix F.

Number of Petroleum Premises.

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

Storage of dangerous petroleum in bulk.

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

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

Combined storage of petrol, kerosene and liquid fuel.

Inspection of petroleum premises during the year.

14. In all 1,748 inspections of petroleum premises were made.

15. The large petroleum installations are usually under efficient European supervision and are in good order and well looked after.

Condition of major installations.

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 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 vast majority of them are in very good order.

Condition of minor installations.

Accidents.

17. A list of accidents, with a short account of each, that have occurred with explosives, inflammable substances, dangerous goods, etc., between the 1st January and 31st December 1930 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. 52 such accidents resulting in 53 deaths and injuries to 70 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 four accidents from gunpowder during the year causing seven deaths and injuries to one person.

Nitro-Compounds, Class III.

19. There were two accidents from nitro-compounds causing one death and injuries to six persons.

Chlorate Mixture, Class IV.

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

Fulminates, Class V.

21. Four accidents from fulminates causing injuries to seven persons were reported.

Ammunition, Class VI.

22. There were three accidents from ammunition causing one death and injuries to eight persons.

Fireworks, Class VII.

23. Thirty accidents from fireworks caused forty-two deaths and injuries to thirty-six persons.

Liquid Oxygen Explosives.

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

25. There were eight accidents from petroleum during the year, which were responsible for two deaths and injuries to eleven 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 was one miscellaneous accident causing injuries to one person.

General Remarks.

29. Sixteen 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

Government Magazines in charge of civil officers.

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 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.

30. Seven Railway magazines were inspected by this Department during the year.

31. In September 1930 the Deputy Commissioner of Police, Calcutta, informed me of the shortage of one case of
Loss of high explosives in transit. Dynamite weighing 50 lbs. out of a consignment sent to Messrs. Gillanders Arbuthnot & Co., Calcutta, by the manufacturers per S. S. Clan MacGillivray. The consignment was first discharged at Diamond Harbour from the vessel into the firm's boats on 14th July 1930 and taken to Uluberia for despatch by rail to their several magazines the next day. The case was intended for their Bally magazine. It would appear that a period of about a month elapsed before the whole consignment was booked from Uluberia.

On the 24th July 1930 Messrs. Gillanders Arbuthnot & Co., Calcutta, despatched by rail 350 cases of explosives out of the consignment imported *ex. S.S. Clan MacGillivray* in July 1930 from Uluberia to their Bermo magazine, Bermo Station. These cases were loaded by a representative of the Company in a wagon and the railway staff granted a railway receipt without checking the contents of the wagon. The wagon was not properly secured by the railway staff. On arrival of the wagon at Kharagpur 4 cases of Blasting gunpowder pellets were found to be short. The loss was investigated by the Government Railway Police, Kharagpur. It could not be localised and might have taken place between Diamond Harbour, where the explosives were unshipped, and Kharagpur.

In February 1931 a case of 5,000 Detonators was sent by the Anglo-Siam Corporation Ltd., Agents, Messrs. Nobel's Explosives Co Ltd., Bombay, to the Mine Manager, Chikla Mine of the Central Provinces Manganese Ore Co. Ltd., Nagpur. On arrival at Gobarwahi station, Bengal Nagpur Railway, the case was found to be short by 203 detonators. The loss was reported to the Superintendent of Police, Bhandara and the Railway Police. No intimation has as yet been received by me whether the missing detonators have since been traced.

32. In their Notification No. M-1217, dated 16th April 1930, the Government of India amended rule 35 of the
Explosives Rules, Indian Explosives Rules, 1914, relating to the possession of manufactured fireworks in Burma.

In their Notification No. M-1217, dated 13th March 1931, the Government of India amended the Indian Explosives Rules, 1914, so as to prescribe the procedure in applying for licenses under Article 10 of Schedule II to those Rules.

In their Notification No. 44-Mne., dated the 27th October 1930, the Government of Bengal amended rule 1 of the rules to regulate the transport and importation of explosives in the Port of Calcutta, so as to double the quantities of explosives which a ship may have on board within the limits of the port.

The Government of Bombay in their Notification No. 7622, dated 16th March 1931, amended the special rules for the transport of explosives within the limits of the Port of Karachi by substituting the words "Deputy Conservator" and "Deputy Conservator or any other officer appointed by him in this behalf" for the words "Port Officer" and "Harbour Master" respectively, wherever they occurred.

The Government of Bihar and Orissa have issued a letter to the Commissioners of all Divisions relaxing conditions 3 and 5 of license form E of the Indian Explosives Rules, 1914, in cases of temporary licenses to be issued in that form to petty contractors and cultivators for blasting purposes subject to certain precautionary conditions which would in future be substituted for conditions 3 and 5 in such temporary licenses issued in form E.

33. The Government of India in their Notification No. M-1219, dated 16th April 1930 amended their Notification No. M-1219, dated 8th November 1927 relating to the prohibition of the manufacture, possession and importation of any explosive consisting of or containing sulphur in admixture with chlorate of potassium or any other chlorate except in certain circumstances.

34. This Department was consulted by the Government of Assam and the Chief Engineer, Great Indian Peninsula Railway, with regard to the proposed rules for the custody and use of explosives by the Public Works Department, Assam, and the Great Indian Peninsula Railway respectively.

35. With reference to an enquiry I have stated that "Burglar Alarm" consists of a 12 bore cartridge loaded with powder which comes under the definition of ammunition, and therefore a license is necessary under the Indian Explosives Rules, 1914, for the possession and sale of the appliances with charges.

36. In reply to an enquiry from the Commissioner of Police, Calcutta, regarding the importation of "Detonating Crack Pills" I have advised him that as the pills which contain silver fulminate, come under the definition of Fulminate, Class V, and no explosives of this class are at present authorised for importation into British India, the pills in question should not be permitted to be imported.

37. In reply to an enquiry as to whether "Lepit Cartridge" should be treated as an explosive under the Indian Explosives Act, I have stated that as the Cartridge consists of potassium nitrate, sulphur and sawdust and burns only very slowly and is difficult to light I do not regard it as coming under the definition of explosive as given in the Act.

38. In reply to an enquiry from the Superintendent of Police, Arms Department, Bombay, I have informed him that I do not consider that the big-bang pistol

is a dangerous toy. It cannot possibly do any damage and no explosives are required. The only possible objection is its resemblance to a real revolver. Bangsite is not an explosive.

39. On a reference from the Commissioner of Police, Calcutta, I have informed him that no license under the Indian Explosives Rules is necessary for the importation, possession, etc., of the cartridges as no explosives are present in them, the quantity of sulphur being so minute that it should be ignored.

Flash light cartridges.

40. In his Notification No. 28 of 1930-31, dated 6th August 1930, the Chief Commissioner, Andaman and Nicobar Islands, published rules regulating the possession and transport of petroleum in the Andaman and Nicobar Islands.

Petroleum Rules.

In their Notification No. 6837, dated 20th March 1931, the Government of Bombay amended the rules for the importation, possession and transport of petroleum in the Bombay Presidency so as to allow the re-importation of petroleum from Kathiawar.

The Government of Bihar and Orissa have delegated to all District Magistrates within the areas subject to their jurisdiction the power to grant licenses in form B of the Petroleum Rules for the possession of dangerous petroleum, otherwise than in bulk, in quantities exceeding 40 gallons but not exceeding 1,000 gallons.

41. The Government of Burma in their Notification No. 70, dated 1st September 1930 amended the rules for the

Rules for the regulation of the refining and testing of petroleum.

regulation of the refining and testing of petroleum produced in Burma by the substitution of the words "Deputy Commissioner or the Warden of the Burma Oil Fields or an Assistant Warden as the case may be" for the words "Deputy Commissioner" wherever they occurred.

42. The Government of Bombay in their Resolution No. 6774, dated 21st July 1930 amended the rules for the transport

Transport of petrol in country craft.

of petrol in country craft between Bombay and other Ports in the Presidency so as to allow the carriage of petrol packed in 4 gallon sealed drums.

43. With reference to an enquiry from Messrs. Alfred Herbert (India)

Croda Lanoline Rust Preventers.

Limited, Calcutta, whether they can import and transport Croda Lanoline Rust Preventers without a license under the Indian Petroleum Act, I have informed them that as the substances contain petroleum oil they come under the definition of "petroleum" and, as such, licenses under the Petroleum Rules will have to be obtained for the possession and transport of the substances in question in quantities exceeding 500 gallons but not for their importation.

44. The Government of India have sanctioned the amendment of rule 3

Carbide of Calcium Rules.

of Part II and condition 7 of Form B of the rules to regulate the importation, possession and transport of Carbide of Calcium so as to prohibit the use of high pressure generators except with special permission, and to allow the use of low pressure generators without restriction.

45. With a view to minimising, as far as possible, the dangers attending

Precautions to be observed in connection with the use of acetylene plants.

the use of acetylene generators, I framed instructions entitled "Precautions to be observed in connection with the use of acetylene plants"

and the Government of India forwarded them to all Local Governments and Administrations for publication in the local official gazettes for the information of all concerned. A copy of the precautions will be found in Appendix K.

46. In reply to an enquiry from the Bombay Port Trust whether composition for painting ships can be admitted into docks, I have stated that the ships composition, packed in iron drums, in quantity not exceeding 400 ten-gallon drums is allowed at any dock in the port of London and recommended that the composition not exceeding 4,000 gallons in iron drums be allowed at any dock in the port of Bombay.

47. A very large number of enquiries of a varied nature was received during the year from District Officials, private individuals, firms, Port authorities and Railways. These were all dealt with.

48. I 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).

49. The number of inspections done by this Department during the year was 1931. 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 1930 to 31st March 1931, the Inspectors at Calcutta, Poona and Lahore were away from their head-quarters for 180, 196 and 76 days and travelled 26,313, 36,812 and 15,074 miles respectively.

The Chief Inspector of Explosives was on tour for 81 days, travelled 18,990 miles and inspected 44 explosives magazines and 139 petroleum premises and visited the ports of Calcutta, Bombay and Chittagong.

Owing to the increasing use of bombs by revolutionaries and criminals which has necessitated constant calls on the time of the officers of this Department who are required to inspect and open bombs and to appear in the courts to give evidence in connection with criminal cases, the ordinary inspection work of the Chief Inspector of Explosives and the Inspectors of Explosives has had to be suspended for a portion of the year with the result that the number of inspections done by this Department during the year under review is much less than those during the previous years.

50. This office is now permanently located in Calcutta at No. 1, Council House Street.

I have the honour to be,

SIR,

Your most obedient Servant,

N. L. SHELDON,

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 1930.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Assam	Lakhimpur	8	...	8	8	...	8
		1	...	1	1	...	1
	TOTAL	9	...	9	9	...	9
Bengal	Burdwan	11	3	14	8	3	11
	Darjeeling	2	...	2	2	...	2
	Hooghly	4	...	4	1	...	1
	Howrah . . . . .	...	1	1	...	1	1
	24-Farganas	2	...	2	1	...	1
	TOTAL	19	4	23	12	4	16
Bihar and Orissa	Gaya	3	...	3	3	...	3
	Hazaribagh	19	...	19	15	...	15
	Manbhum	29	...	29	26	...	26
	Sambalpur	1	...	1	1	...	1
	Santal Parganas	2	...	2	2	...	2
	Singbhum	10	1	11	8	1	9
TOTAL	64	1	65	55	1	56	

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 1930—contd.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New	TOTAL.
Bombay	Aden . . .	4	...	4	4	...	4
	Ahmedabad . .	4	...	4	4	...	4
	Bombay . . .	10	...	10	6	...	6
	Bombay Suburban.	7	...	7	6	...	6
	Broach . . .	1	...	1	1	...	1
	Karachi . . .	5	...	5	3	...	3
	Kolaba . . .	1	...	1	1	...	1
	Panch Mahals . .	3	...	3	3	...	3
	Poona . . .	2	...	2	2	...	2
	Ratnagiri . . .	2	...	2	2	...	2
Surat . . .	2	...	2	2	...	2	
West Khandesh .	1	...	1	1	...	1	
	TOTAL . . .	42	...	42	35	...	35
Burma	Amherst . . .	1	...	1	1	...	1
	Bassein . . .	2	...	2	2	...	2
	Hanthawaddy . .	4	...	4	2	...	2
	Katha . . .	1	...	1	1	...	1
	Magwe . . .	1	...	1	1	...	1
	Mandalay . . .	1	...	1	1	...	1
	Myitkyina . . .	1	...	1	1	...	1
	Northern Shan States.	9	...	9	5	...	5
	Pegu . . .	1	...	1	1	...	1
	Carried over . .	21	...	21	15	...	15

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 1930—contd.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Burma	Brought forward	21	...	21	15	...	15
	Southern Shan States.	1	...	1	1	...	1
	Tavoy	6	...	6	4	...	4
	Thaton	7	...	7	6	...	6
	Toungoo	1	...	1	1	...	1
	TOTAL	36	...	36	27	...	27
Central Provinces	Amraoti	1	...	1	1	...	1
	Balaghat	5	...	5	5	...	5
	Bhandara	1	1	2	1	1	2
	Bilaspur	1	...	1	1	...	1
	Chanda	6	...	6	5	...	5
	Chhindwara	4	1	5	4	1	5
	Jubbulpur	2	...	2	2	...	2
	Nagpur	8	...	8	8	...	8
	Raipur	3	...	3	4	...	4
TOTAL	31	2	33	31	2	33	
Coorg	Mercara	1	...	1	1	...	1
	TOTAL	1	...	1	1	...	1

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 1930—concl'd.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Madras	Anantapur . . .	1	...	1	1	...	1
	Chingleput . . .	2	...	2	2	...	2
	Chittoor . . .	2	...	2	2	...	2
	Coimbatore . . .	1	...	1	1	...	1
	Godavari West . . .	1	...	1	1	...	1
	Guntur . . .	1	...	1	1	...	1
	Madras . . .	14	1	15	7	1	8
	Madura . . .	2	...	2	2	...	2
	Nellore . . .	4	...	4	2	...	2
	North Arcot . . .	2	...	2	2	...	2
	Ramnad . . .	1	...	1	1	...	1
	South Arcot . . .	3	...	3	3	...	3
	Tanjore . . .	14	...	14	14	...	14
	Tinnevely . . .	1	...	1	1	...	1
Trichinopoly . . .	6	...	6	6	...	6	
Vizagapatam . . .	4	...	4	3	...	3	
	TOTAL . . .	59	1	60	49	1	50
Punjab	Attock . . .	4	...	4	2	...	2
	Mianwali . . .	1	...	1	1	...	1
	TOTAL . . .	5	...	5	3	...	3
United Provinces	Meerut . . .	1	...	1	3	...	3
	Shahjahanpur . . .	1	...	1	1	...	1
	TOTAL . . .	2	...	2	4	...	4

SUMMARY.

Presidency or Province.	MAGAZINES.			LICENSES.		
	Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Assam	9	...	9	9	...	9
Bengal	19	4	23	12	4	16
Bihar and Orissa	64	1	65	55	1	56
Bombay	42	...	42	35	...	35
Burma	36	...	36	27	...	27
Central Provinces	31	2	33	31	2	33
Coorg	1	...	1	1	...	1
Madras	59	1	60	49	1	50
Punjab	5	...	5	3	...	3
United Provinces	2	...	2	4	...	4
TOTAL	268	8	276	226	8	234

APPENDIX B.

Summary of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II for the 10 years ending 1930.

YEAR.	MAGAZINES.			LICENSES.		
	Under renewed license.	Under new license.	TOTAL.	Renewed.	New	TOTAL.
1921	27	28	255	180	25	205
1922	237	20	257	190	19	209
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	213	18	231
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

APPENDIX C.

Statement showing the imports of explosives by sea into British India from other countries in the year 1930.

Explosives.	Bengal.	Bombay.	Sind.	Burma.	Madras.	TOTAL.
<i>Quantity.</i>						
Gunpowder, black lbs.	95,100	18,900	5,750	325	7,800	127,875
" " smokeless.	12,800	250	—	—	1,838	14,888
Dynamite . . . "	260,050	7,500	—	58,500	60,000	386,050
Blasting gelatine . . "	15,050	29,200	—	7,500	19,750	245,500
Gelignite or gelatine dynamite.	461,000	75,000	—	170,000	214,050	920,050
Other nitro-compound explosives.	20,000	—	—	—	—	203,000
Detonators . . . No.	3,055,000	699,058	—	910,000	1,782,500	6,446,558
Fireworks . . . lbs.	140,290	1,520,198	40,889	174,150	369,154	2,244,621
TOTAL . . . "	1,187,290	1,651,048	46,639	410,415	846,592	4,141,984
TOTAL . . . No.	3,055,000	699,058	...	910,000	1,782,500	6,446,558
<i>Value in rupees.</i>						
Gunpowder, black . . .	52,940	18,334	3,614	382	5,255	80,525
" " smokeless . . .	24,977	1,133	—	—	1,694	27,804
Dynamite	1,88,052	5,085	—	87,140	43,339	3,23,616
Blasting gelatine . . .	12,902	24,731	—	14,572	1,63,303	2,15,408
Gelignite or gelatine dynamite.	3,35,781	55,381	—	2,53,261	1,61,430	8,05,853
Other nitro-compound explosives.	1,17,196	—	—	—	—	1,17,196
Detonators	1,28,129	11,699	—	49,398	28,935	2,18,221
Fireworks	1,13,449	4,55,598	19,616	77,239	1,58,083	8,24,985
TOTAL	9,73,426	5,72,961	23,230	4,81,992	5,61,999	26,13,608

APPENDIX D.

Comparative statement showing the imports of explosives by sea into British India from other countries for the ten years ending 1930.

Explosives.	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
Gunpowder, black . . . lbs.	91,710	135,975	124,659	340,886	351,255	299,440	178,550	164,100	111,680	127,875
„ smokeless . . . „	22,400	18,435	15,176	39,407	17,437	28,250	21,238	11,567	15,950	14,888
Dynamite „	523,000	275,000	361,250	328,122	500,700	315,200	364,750	451,550	495,750	386,050
Blasting gelatine . . . „	102,000	530,100	649,250	486,900	457,995	316,050	271,500	410,800	492,800	245,500
Gelignite or gelatine dynamite . „	406,812	498,500	411,025	494,800	1,096,201	663,500	924,001	1,126,700	1,082,000	920,050
Other nitro-compound explosives „	157,180	141,272	160,577	„	80,350	75,250	150,025	130,000	221,500	203,000
Detonators No.	3,694,702	3,655,057	3,796,390	4,115,050	6,881,024	6,242,556	6,910,498	8,872,023	8,022,326	6,446,558
Fireworks lbs.	3,719,897	3,838,853	3,391,838	3,800,633	3,397,572	4,970,986	3,819,378	4,422,887	4,940,692	2,244,621
TOTAL . . „	5,022,499	5,428,136	5,113,775	5,560,748	5,911,509	6,668,676	5,729,742	6,717,604	7,360,372	4,141,984
TOTAL . . No.	3,694,702	3,655,057	3,796,390	4,115,050	6,881,024	6,242,556	6,910,498	8,872,023	8,022,326	6,446,558

APPENDIX E.

DEPARTMENT OF EXPLOSIVES.

NOTIFICATION.

Calcutta, the 27th May 1931.

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

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.
Di-nitro-phenol.		Picric Acid.
Economic Smokeless Sporting Powder.	}	Picric Powder.
E. C. Sporting Powder.		Roburite No. 4.
Eley Smokeless Sporting Powder.	}	Ruby Powder.
Empire Powder.		Schultze Gunpowder.
Ideal Powder.	}	Smokeless Diamond.
Light Load Smokeless.		Tonite or Cotton Powder.
Nobel's Special Powder.	}	Tri-nitro-toluol.

CLASS 4.—CHLORATE MIXTURE.

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

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 capsules 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	|	Safety Cartridges.
Fuzes.		Safety Fuzes for blasting.
Percussion Caps.		Safety Electric Fuzes.
Railway Fog-Signals.		

* 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.

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.

N. L. SHELDON,

Chief Inspector of Explosives in India

APPENDIX F.

*List of petroleum premises licensed during the year 1930.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Ajmer-Merwara .	Ajmer	25		Brought forward	5:2
	TOTAL	25		Hooghly	29
	Cachar	17		Howrah	50
	Darrang	13		Jalpaiguri	25
	Goalpara	22		Jessore	21
	Kamrup	20		Khulna	19
Assam	Khassi and Jaintia Hills	3		Malda	7
	Lakhimpur	24		Midnapur	60
	Naga Hills	6	Bengal—contd.	Marshidabad	26
	Noongong	9		Mymensingh	47
	Sibsagar	30		Nadia	32
	Sylhet	75		Noakhali	11
	TOTAL	209		Pabna	19
Baluchistan	Quetta	18		Rajshahi	27
	Loralai	3		Rangpur	52
	Sibi	6		Tippera	48
	Zhob	6		24-Parganas	62
	TOTAL	33		TOTAL	1,067
	Backerganj	39		Balasure	12
	Bankura	17		Bhagalpur	43
	Birbhum	14		Champanan	27
	Bogra	27		Cuttack	17
	Burdwan	81		Darbhanga	39
Bengal	Calcutta	197	Bihar and Orissa	Gaya	42
	Chittagong	28		Hazaribagh	31
	Dacca	51		Manbhum	71
	Darjeeling	33		Monghyr	32
	Dinajpur	9		Muzaffarpur	35
	Faridpur	36		Carried over	340
	Carried over	532			

*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 1930—contd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
	Brought forward .	349		Brought forward .	702
Bihar and Orissa —contd.	Palamau	11	Bombay—contd.	Larkana	6
	Patua	69		Nasik	52
	Puri	13		Panch Mahals	11
	Purnea	27		Poona	50
	Ranchi	28		Ratnagiri	69
	Sambalpur	15		Satara	38
	Saran	33		Sholapur	40
	Shahabad	48		Sukkur	10
	Singhbhum	40		Surat	34
	Soutial (argona)	26		Thana	26
	TOTAL .	659		TOTAL .	1,038
Bombay .	Aden	24	Burma .	Amherst	15
	Ahmedabad	65		Bassein	4
	Ahmednagar	20		Bhamo	3
	Belgaum	50		Hanthawaddy	7
	Bijapur	11		Insein	3
	Bombay	212		Katha	3
	Broach	19		Kyaukse	1
	Dharwar	77		Lower Chindwin	8
	Hyderabad (Sind)	11		Magwe	47
	Kaira	37		Mandalay	14
	Karachi	65		Maubin	7
	East Khandesh	55		Meiktila	9
	West Khandesh	24		Mergui	11
Kolaba	27	Minbu	21		
Kolhapur	5	Myaungmya	12		
	Carried over .	702		Myingyan	6
				Carried over .	171

* 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 1930—contd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Burma—contd.	Brought forward	171	Central Provinces—contd.	Brought forward	303
	Myitkyina	8		Damoh	6
	Northern Shan States	15		Drug	15
	Pakoku	17		Hoshangabad	32
	Pegu	20		Jubbulpore	29
	Prome	10		Manilla	3
	Rangoon	56		Nagpur	49
	Sagaing	2		Narsingpur	5
	Sandoway	3		Nimar (Khandwa)	19
	Southern Shan States	10		Raipur	27
	Tavoy	13		Sangor	10
	Tharrawaddy	3		Seoni	6
	Thaton	7		Wardha	23
	Thayetmyo	13		Yeotmal	54
	Upper Chindwin	3		TOTAL	581
Yamethin	7	Coorg	12		
TOTAL	358	TOTAL	12		
Central India	Bhopal (Ry. land)	5	Delhi	49	
	TOTAL	5	TOTAL	49	
Central Provinces.	Akola	71	Hyderabad	Hyderabad	39
	Amraoti	60		Secunderabad	35
	Balaghat	11		TOTAL	74
	Betal	11	Madras	Anantapur	25
	Bhandara	32		Bellary	23
	Bilaspur	26		Chingleput	32
	Buldana	50		Chittoor	24
	Chanda	26		Coimbatore	96
	Chhindwara	16		Cuddapah	11
	Carried over	303		Carried over	211

* 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 1930—contd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Madras—contd.	Brought forward	211	Punjab	Ambala	38
	Ganjam	27		Amritsar	15
	East Godavari	46		Attock	10
	West Godavari	37		Dera Ghazi Khan	6
	Guntur	42		Ferozepore	17
	Kistna	46		Gujranwala	17
	Kurnool	29		Gujrat	17
	Madras	48		Gudaspur	33
	Madura	62		Gurgaon	15
	Malabar	94		Hissar	15
	Nellore	28		Hoshiarpur	9
	North Arcot	69		Jh lum	11
	The Nilgiris	36		Jullundur	19
	Ramnad	79		Kangra	1
	Salem	36		Karnal	19
	South Arcot	50		Labore	39
	South Canara	46		Ludhiana	19
Tanjore	79	Lyalpur	25		
Tinnevely	36	Mian Wali	2		
Trichinopoly	44	Multan	8		
Vizagapatam	49	Muzaffargarh	5		
TOTAL	1,194	Patiala	5		
Mybore	Bangalore	43	Rawalpindi	39	
	TOTAL	43	Shahpur	13	
North-West Frontier Pro- vince.	Banna	3	Sheikhupura	9	
	Hazara	18	Sialkot	15	
	Kohat	8	Simla	2	
	Peshawar	37	TOTAL	424	
TOTAL	66				

* 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 1930—concl'd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
United Provin- ces.	Agra	17	United Provin- ces—cont'd.	Brought forward	£90
	Aigarh	30		Gonda	18
	Allahabad	32		Gorakhpur	26
	Almora	2		Hamirpur	6
	Azamgarh	16		Jalaun	5
	Babraich	10		Jaunpur	1
	Ballia	7		Jhansi	24
	Banda	8		Kheri	16
	Bara Banki	20		Lucknow	40
	Bareilly	18		Mainpuri	14
	Basti	24		Meerut	37
	Benares	41		Mirzapore	19
	Bijnor	8		Moradabad	3
	Budaun	4		Muttra	13
	Bulandshahr	17		Muzaffarnagar	15
	Cawnpore	36		Naini Tal	14
	Dehra Dun	27		Partabgarh	18
	Etah	7		Pilibhit	3
	Etawah	9		Rae Bareilly	11
	Furrukhabad	24		Saharanpur	29
	Fatehpur	8		Shahjahanpur	7
	Fyzabad	14		Sitapur	14
	Garhwal	6		Sultanpur	10
	Ghazipur	5		Unao	8
	Carried over	390		TOTAL	741

* 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	25
Assam	209
Baluchistan	33
Bengal	1,067
Bihar and Orissa	659
Bombay	1,038
Burma	358
Central India	5
Central Provinces	581
Coorg	12
Delhi	49
Hyderabad	74
Madras	1,194
Mysore	43
North-West Frontier Province	66
Punjab	424
United Provinces	741
TOTAL	6,578

APPENDIX G.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930.

EXPLOSIVES.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
1	22nd April 1930.	Gunpowder.	Rohri	While blasting powder was being manufactured in a factory, a serious explosion occurred followed by a fire which resulted in the destruction of the factory and in the death of 5 workmen. The cause of the accident could not be ascertained as the deceased were the only individuals working at the time.	5	...
2	24th September 1930.	Ditto	Pappankulam.	Eight persons who were engaged in blasting stones for deepening a well, bored two holes 2 feet apart from each other, charged them with gunpowder and set fire to the charge. When they were running away, a stone which was blown up, struck one of them on the head which caused serious injuries to him from which he succumbed the next day.	1	...
3	28th September 1930.	Ditto	Assegaon	In order to save his crop from flies a person purchased sulphur, nitre, etc., to make a bomb. While he was grinding the same in a stone pestle and mortar in his house, the mixture exploded and caused him serious injuries.	...	1
4	13th October 1930.	Ditto	Kaliappan Thottam.	Five men were engaged in blasting operations in connection with the deepening of a well. One of them having packed a charge stayed behind to ignite the fuse and before he could get clear of the well the charge exploded with the result that he sustained serious injuries to which he succumbed in the hospital.	1	...
Total					7	1

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
5	17th April 1930.	Dynamite	Khariar Road.	On 16th April 1930 a blasting mistry fired six charges, one of which was a failure. He marked it and warned all persons against working at this cutting till the unexploded charge was made ineffective. The next day he did not go out and another man took the blasting gang out to another cutting. Two men who were not present on the previous day and came on the 17th April 1930 after the main party had gone on to the cutting, commenced boring without permission in the hole containing the unexploded charge with the result that it exploded and caused serious injuries to one and fatal injuries to the other.	1	1
6	2nd June 1930.	Dynamite	Between Sakriganji Junction and Maharajganj.	A rock was being blasted in connection with the diversion of a track and 12 holes were fired by electric exploder on 1st June 1930. After the blast the place was examined by the Contractor's agent and the Khalasi in charge found no indication of any misfire and so the coolies started removing the debris. On the following day while the coolies were still clearing the debris, there was a sudden explosion as a result of which 5 of them were injured.	...	5
Total					1	6
7	29th August 1930.	Fulminate	Calcutta	While a person was grinding a mixture of potassium chlorate and sulphur, an explosion occurred causing injuries to his hands and face.	..	1
8	22nd October 1930.	Do.	Pazundaung, Rangoon.	A clerk and a packer of the Pazundaung Post Office seized the ends of a parcel bag re-	...	2

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—
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.
9	25th April 1930.	Bomb	Ekambareswara, Agraharam, Madras.	<p>ceived from Rangoon General Post Office and began to upset the contents when an explosion occurred causing injuries to both of them. A tin containing a mixture of sulphide of arsenic and chlorate of potash which had been sent by a lady to her son employed in Rangoon for manufacturing fireworks was in the bag and exploded when it fell on the ground.</p> <p>A person purchased two packets of yellow and white powders (probably sulphide of arsenic and potassium chlorate) mixed them together and put the mixture in a small glass bottle. He then placed the bottle within a coconut shell and tied it with cotton and coir and kept the shell in a tin box. On the 25th April 1930 he took it out and placed it outside the box when it exploded and caused serious injuries to both his hands and his face and body. He was convicted and sentenced to pay a fine of Rs. 15.</p>	...	1
10	20th December 1930.	Do.	Gharibabad, Sukkur.	<p>While a person was selling sugarcane cubes by the side of a road he heard a loud report of an explosion which was reported to be due to a bomb and was struck by some sharp edged thing below the left ear causing slight bleeding. Two other persons, one of whom was proceeding towards the hawker to purchase sugarcane cubes and the other who was sitting near him, were also slightly injured.</p>	...	3
Total					...	7

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
11	3rd February 1930.	Ammunition.	Bombay	A boy picked up a loaded cartridge containing small shot and on striking it with a hammer the cartridge exploded causing injuries to both himself and his sister.	...	2
12	4th May 1930.	Ditto	Kirkee	Three employees of the Ammunition Factory, Kirkee, and one employee of the Kirkee Arsenal were going to the Railway Station to see off two employees of the G. I. P. Railway when a detonator stolen from the factory and probably kept in a <i>dhoti</i> worn by one of the men exploded causing injuries to all of them.	...	6
13	14th May 1930.	Ditto	Bellary	An explosion occurred in the premises of a licensed dealer in arms and ammunition causing injuries to the watchman from which he subsequently succumbed. It was reported that the cause of the explosion was rather mysterious but probably as a result of the collapse of the wall or roof on the cupboard the ammunition contained therein got ignited and the whole building exploded.	1	...
Total					1	8
14	7th January 1930.	Fireworks	Veerapandy, District Madura.	A woman got into a bus of the Janakiram Motor Service proceeding from Periyakulam to Cumbum with a basket of fireworks which she kept under the bench. While near Veerapandy a sudden explosion occurred causing the death of 13 persons and injuries to three. The exact cause of the explosion could not be ascertained as all the persons who were seated on the bench died as a result of the explosion.	13	3

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
15	7th January 1930.	Fireworks	Thengarai, Periyakulam.	A holder of a license in form A and his father were manufacturing fireworks in their house instead of in the licensed premises. While the father of the licensee was grinding gunpowder with a grinding stone, an explosion occurred, due to the presence of sand and grit, fatally injuring him. The licensee was prosecuted and tried for an offence under the Indian Explosives Rules and fined Rs. 50.	1	...
16	3rd February 1930.	Ditto	Moradabad.	A constable found a flour ball lying in the sand and took the same to feed his cow. The ball when pressed suddenly exploded injuring both his hands. The ball was an ordinary cracker coated with flour generally used by villagers to kill wild animals.	...	1
17	2nd March 1930.	Ditto	Calcutta	A boy while letting off fireworks along with other boys got accidentally injured.	...	1
18	5th March 1930.	Ditto	Kallahasti, Chittoor.	Two men were preparing fireworks in an unlicensed building when an explosion occurred and both of them died as a result thereof. No definite information as to how the explosion occurred could be obtained.	2	...
19	6th March 1930.	Ditto	Charrai	While a licensed dealer was filling in a firework bomb, an explosion occurred fatally injuring him. The cause of the explosion is unknown.	1	...
20	30th March 1930.	Ditto	Surul, Birbhum.	Two persons were preparing fireworks in an unlicensed hut. One of them was smoking and a spark fell on the explosive. There was an explosion and the two persons were seriously injured. They succumbed to their injuries later.	2	...

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
21	4th April 1930.	Fireworks	Ambasamudram, Tinnevely District.	An explosion occurred in a small licensed manufactory at about 2 A.M. in the morning resulting in the death of 3 persons. The cause of the explosion could not be ascertained but was probably due to all the three servants of the licensee having carried on the work of making fireworks with the aid of a lamp at night.	3	...
22	27th April 1930.	Ditto	Narayan-gaon, Poona District.	A license holder who had to send consignments of fireworks to various fair centres brought them home to have them packed. Some of the fireworks being damp he spread them out in an open space in his house to dry. Owing to excessive heat the fireworks took fire and ignited others stacked about 8 feet away from the rooms occupied by his family. Five inmates could not get out of the place and were burnt to death.	5	...
23	4th May 1930.	Ditto	Gopalpore, Chhindwara.	While a person was letting off fireworks, his shirt accidentally caught fire, also some other fireworks which he had with him. He and two other persons received injuries.	...	3
24	16th May 1930.	Ditto	Kanigiri	Some employees of a licensee were manufacturing fireworks in an explosive shop when an explosion occurred and four persons were seriously injured and subsequently died. The explosion was due to the friction caused by the cutting of a fuse with a knife. The licensee was convicted and sentenced to pay a fine of Rs. 100.	4	...
25	18th May 1930.	Ditto	Akola	A licensee with his brother was preparing fireworks for a marriage ceremony inside a tin shed attached to his house which was closed inside when there	3	...

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
				was an explosion. On opening the door both of them were found lying dead. A few days later the licensee's daughter also succumbed to the injuries received in the explosion. The cause of the explosion was believed to be due to the ignition of fireworks owing to excessive heat.		
26	30th May 1930.	Fireworks	Nawalgaon	A member of a marriage party was sitting with "GUJKUNDI" and some gunpowder in a tin box by his side. He produced fire by means of a flint to smoke when there was an explosion which resulted in his instantaneous death and severe injuries to two boys, one of whom subsequently died.	2	1
27	31st May 1930.	Ditto	Villupuram	Two persons applied to the District Magistrate, South Arcot, for a gunpowder license in connection with a Roman Catholic procession. The promoters of the procession having applied to the Chairman for fireworks manufacturer the latter recommended one of the persons who purchased some fireworks and brought them to Villupuram. While he and his son were displaying the fireworks, an ignited rocket hit the armpit of his son causing a mortal injury. In the confusion that prevailed, a spark from a Bengal rocket fell on the gunpowder kept for <i>adireedies</i> when there was a sudden explosion as a result of which five persons were injured.	1	5
28	7th June 1930.	Ditto	Nagari, Chittoor District.	Four persons were manufacturing fireworks inside an explosive shop and some out-rounds were exposed to the sun over a	...	1

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
				gunny outside the building. Suddenly at about 1 P. M a flash of light was seen and the four persons ran out of the building. Three of them got out unhurt but the fourth was scorched by the fire. No definite cause of the fire could be ascertained but it was reported that owing to excessive heat the out-rounds caught fire which spread on to the explosives inside the building.		
29	25th August 1930.	Fireworks	Calcutta	Two men and a boy were injured while they were burning fireworks in a dish and a tray on the roof of their house.	...	3
30	10th September 1930.	Ditto	Do.	Mr. C. Megens of 36, Marsden Street, Calcutta, kicked a small ball-like object lying on the floor of his hall when it exploded causing him slight injuries.	...	1
31	21st September 1930.	Ditto	Do.	Some boys were throwing Patakas (throwdowns) from their houses in a street when a pataka struck a boy who was standing nearby causing injuries to his legs and neck. Another boy who while on his way home from his shop was also struck by a pataka and was injured.	...	2
32	25th September 1930.	Ditto	Washermanpet, Madras.	While a person was manufacturing fireworks without a license, an explosion occurred causing injuries to his face and hand. He was prosecuted and fined Rs. 15.	...	1
33	25th September 1930.	Ditto	Tirumali, Chittoor District.	Some workmen had left some red and blue balls, used for packing "outs" or fancy shells, exposed to the sun in front of them on the floor to the south of the verandah of a room where they were engaged	...	3

APPENDIX G—contd

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
				in packing gunpowder and earth in earthen cones used for <i>Buruzulu</i> when they were blinded by a sudden blaze of fire near them as a result of which 3 of them were slightly injured. Probably the red and blue balls left outside to dry in the sun caught fire by over exposure and the blaze exploded the powder and <i>Buruzulu</i> .		78
34	27th September 1930.	Fireworks	Rawiwar Peth, Poona.	A son of a licensee's agent, aged about 5½ years, was seriously injured by the explosion of some fireworks which he had taken from the licensed shop without the knowledge of his father. The explosion was probably due to the boy trying to ignite the explosive by a match or pressing it hard. The boy succumbed to his injuries immediately after his arrival in the hospital. The agent was convicted and sentenced to pay a fine of Rs. 200.	1	...
35	18th October 1930.	Do.	Calcutta	A person lighted a cracker bomb but it did not ignite. While he was examining it, it exploded in his hand and caused injury to his palm.	...	1
36	21st October 1930.	Do.	Do.	A boy purchased potassium Chlorate and aluminium powder and went with another boy inside a tobacco shop to prepare powder for making fireworks. After preparing the powder one of them lighted a match and tested it. The other also tried to test the powder and when he lighted a match, the first snatched it from him which accidentally fell upon the stock and ignited it as a result of which both of them were injured.	...	2

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
37	21st October 1930.	Fireworks	Calcutta	A person was standing in a lane near Goa Bagan Basti when a potaka (throwdown) was thrown suddenly from behind which struck him on his right hand causing slight injury.	...	1
38	21st October 1930.	Do.	Do.	At about midnight several persons were displaying fireworks. One of them set fire to a tubri (fireworks) but it did not light. Another person went and picked it up and while he was igniting it with a burning Phuljhari (sparkler), it accidentally burst as a result of which his left palm was blown off.	...	1
39	Do.	Do.	Do.	A boy was lighting a firework when it suddenly exploded and injured him.	...	1
40	23rd October 1930.	Do.	Do.	While a boy was grinding sulphur and potash for manufacturing fireworks, the mixture exploded and caused injuries to his hands, legs and face.	...	1
41	31st October 1930.	Do.	Do.	A boy while he was displaying fireworks on the Jagadhatri Puja Day received slight injuries on his left palm.	...	1
42	18th November 1930.	Do.	Bellary	Two deal wood cases covered with gunny and said to contain safety matches were booked on 17th November 1930 for transport from Bellary to Gadag. Next morning the assistant goods clerk ordered the loading coolies to bring the cases and load them in wagon M. R. C. G. 368. One cooly brought one case and put it in the wagon. Another cooly brought the 2nd case and gave it to the 1st who took it and threw it in one corner of the wagon when it	1	2

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—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.
43	22nd December 1930.	Fireworks	Madras	<p>exploded causing injuries to three persons, one of whom died in the hospital. These cases were found to contain throwdowns.</p> <p>Four men were working inside a shed in the South Indian Athletic Association ground where a large quantity of fireworks was stored in connection with the Park Fair when the fireworks exploded resulting in the death of 3 persons and injury to one.</p>	3	1
TOTAL					42	36

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—
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	17th March 1930.	Petrol	Calcutta	While petrol was being filled in the tank of Motor Bus No. 704 from a kerbside petrol pump, the petrol in the tank suddenly caught fire as a result of which the driver sustained burns. The conductor in trying to put out the fire of the former's clothes was also slightly burnt. The cause of the fire was probably due to smoking or static electricity.	...	2
2	14th May 1930.	Petrol	Santahar	The son of the Standard Oil Company's agent at Santahar with two employees went to the petrol godown at about 7 P.M. to bring petrol to meet an urgent requirement of a customer. One of these men carried a naked light with him which ignited the petrol vapour as soon as the doors were opened. All of them were badly injured.	...	3
3	27th May 1930.	Crude Oil	Chauk	A coolie with three other coolies was engaged in cleaning out the cellar of an oil well and struck a match for lighting a cheroot with the result that the gas issuing from the well was ignited and he sustained burns which proved fatal.	1	...
4	18th June 1930.	Petroleum	Royapuram, Madras.	A large tank containing approximately 1,165 tons of superior Kerosene in the petroleum installation of the Burmah Shell Oil Storage and Distributing Company of India Limited at Royapuram caught fire at 15.45 hours on 18th June 1930 after receiving oil for 5 or 10 minutes from tanker S. S. "Masimpur". The fire burnt itself out by 11 A.M. on the 19th June. The firm were successful in	...	2

APPENDIX G—contd.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930—
contd.

PETROLEUM—contd.

No.	Date of accident.	Nature of Oil.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
				transferring 350 tons from the burning tank. Two Police Sergeants were injured, one of whom fell from a ladder on to an oil drum with another man on top of him and another through a roof dropping about 20 feet. The cause of the fire is believed to be the ignition of petroleum vapour inside the tank by a static charge.		
5	12th July 1930.	Petrol	Calcutta	A car accidentally caught fire while petrol was being filled into its tank from a petrol pump at Lansdowne Road as a result of which two of its occupants sustained slight injuries.	...	2
6	28th July 1930.	Petrol	Fanaswadi, Bombay.	A person was sitting near a cupboard in his room and his daughter aged 5 years was looking for something in the cupboard when a bottle containing petrol fell on to him and the petrol was ignited by a lighted match with which he was about to light a bidi. As a result of the fire he sustained severe burns and died the same evening in the hospital.	1	...
7	4th Aug. 1930.	Petrol	Calcutta	The driver of Motor Bus No. 628 filled the tank of his bus with petrol at No. 4, Ashutosh Mukherjee Road and tried to start it but it would not start. 3 or 4 persons then began to push the Bus from behind when all of a sudden an explosion occurred and the petrol in the tank caught fire as a result of which the driver sustained burns on his legs.	...	1

APPENDIX G.—*contd.*

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1930 to 31st December 1930
—*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.
8	2nd Dec. 1930.	Petrol	Calcutta	The driver of car No. 15626 asked the Assistant in charge of the petrol service station at 17, Chitpur Spur for the supply of 4 gallons of petrol. He measured the petrol and the supply pipe was applied by the Assistant of the driver to the tank which was on the rear of the car when fire broke out suddenly in the tank. The driver got down from the car and took out the supply pipe from the tank when his coat and dhuti caught fire from the mouth of the pipe which was burning as a result of which he was badly burnt. The fire was extinguished by some people. The fire was due to the ignition of petrol vapour from the oil lamp which was burning at the time on the back of the car.	...	1
TOTAL					2	11

APPENDIX H.

Summary of accidents during the year 1930.

Explosives or dangerous and indammable 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 . . .	4	7	1	...	4
Nitro-compounds . . .	2	1	6	...	2
Chlorate Mixture . . .	...	...	...	...	...
Fulminates . . .	4	...	7	...	4
Ammunition . . .	3	1	8	...	3
Fireworks . . .	30	42	36	...	30
Liquid Oxygen . . .	...	...	...	...	...
TOTAL . . .	43	51	58	...	43
<i>Petroleum.</i>					
Petroleum generally . . .	8	2	11	...	8
TOTAL . . .	8	2	11	...	8
Chemicals . . .	...	...	...	...	...
TOTAL . . .	...	...	...	...	...
Miscellaneous . . .	1	...	1	...	1
TOTAL . . .	1	...	1	...	1
GRAND TOTAL . . .	52	53	70	...	52

APPENDIX I.

Detailed statement showing the number of accidents and persons killed and injured during the ten years ending 1930.

Year.	GUNPOWDER.			DYNAMITE AND OTHER NIRO-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.
1921	5	7	4	1	2	15	...	...	...	4	2	3	1	1	3	6	7	11	...	...	...
1922	4	7	7	...	...	...	...	1	1	...	3	2	5	1	...	1	...	1	...	...	...
1923	17	33	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	...	...	...
TOTAL	83	168	117	14	17	62	1	1	...	56	24	102	23	3	51	128	144	214	1	3	...
AVERAGE	8	17	12	1	2	6	1	1	...	6	2	10	2	1	5	13	14	21	1	1	...

APPENDIX I—concl'd.

Detailed statement showing the number of accidents and persons killed and injured during the ten years ending 1930—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.
1921	7	8	20	...	...	...	3	4	2
1922	10	8	2	...	...	...	2	2	4
1923	8	5	11	...	...	...	1	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
TOTAL	89	134	147	7	3	27	22	13	23
AVERAGE	9	13	15	1	1	3	2	1	2

APPENDIX J.

Comparative statement showing the number of accidents and persons killed and injured during ten years ending 1930.

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.		
1921	27	32	61	2	29
1922	21	20	20	1	22
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	138	1	47
1929	37	64	52	4	41
1930	52	53	70	...	52
TOTAL	405	510	743	25	430
AVERAGE	40	51	74	2	43

APPENDIX K.

Precautions to be observed in connection with the use of Acetylene Plants.

1. Only "low pressure" generators (*i.e.*, when the acetylene gas is subject to a pressure above that of the atmosphere capable of supporting a column of water not exceeding 60 inches in height) should ordinarily be used. Higher pressure generators up to a maximum of 250 inches water column may be used, if absolutely necessary, with the previous permission of the licensing authority, provided they are fitted with suitable safety devices.

2. A generator operating at a higher pressure than 60 inches water column must have clearly marked on it the water column pressure at which it works.

3. The operating instructions when not fixed to the apparatus should be kept constantly posted up in a place where they can conveniently be referred to by the attendant.

4. Every apparatus for generating and storing acetylene gas other than a portable apparatus holding a charge of less than 2 lbs. of carbide of calcium should be placed in an out-building, which should be separated as far as practicable from any inhabited building and should be well ventilated.

5. A portable apparatus should only be used in a well ventilated building or place and in a position remote from any fire or combustible material. When not in use the generator should be kept in a building similar to that mentioned in 4 above.

6. No unauthorised persons should be allowed to enter a generator house.

7. No fire, naked light, lamp, other than an electric torch, or smoking should be allowed in a generator house or near a generator.

8. Generators and their fittings should be maintained in good condition. Before executing repairs care should be taken to see that the bell or other parts are entirely free from gas.

9. Generators should be cleaned during day light; when, however, this is not possible only suitable electric lamps or torches should be used for lighting.

10. Partially spent carbide should never be replaced in a generator of the "dipping type". The basket should always be cleaned and filled with fresh carbide.

11. Copper should not be used in the construction of generators, pipes, valves or fittings for acetylene.

12. Electric switches, fuses, etc., in a generator house or near a generator should be so constructed that risk due to sparking or fusing in an explosive atmosphere is avoided.

13. Oxy-acetylene blowpipes should be connected to the oxygen and acetylene supply-pipes by stout rubber tubing strengthened with canvas. Suitable clips should be used for the purpose of attaching tubes to the blow-pipe and other connections.

14. Hydraulic valves should be used with low pressure generators but not with high pressure generators.

15. A hydraulic back pressure valve should be fitted in the acetylene supply-pipe between the generator and each blowpipe as near the blowpipe as possible.

16. Ample means for thorough ventilation should constantly be maintained in use in welding shops, and special provision should be made for ventilating confined spaces in which acetylene is used.

17. A blowpipe designed for use on a low pressure plant should not be used in connection with a high pressure plant, unless a suitable acetylene control valve is fitted to the blowpipe.

18. Tins containing carbide should not be brought into a welding room or near to a flame.

19. Carbide drums should be opened with a tin opener.

20. Cylinders of oxygen and of dissolved acetylene should not be subjected to rough usage nor exposed to high temperatures.

21. Reducing valves should always be fitted on both oxygen and acetylene cylinders when in use.

22. Gas cylinder valves, especially those on oxygen cylinders, should always be opened slowly.

23. Oil or grease should not be used in connection with valves, fittings or tubing on oxygen cylinders.

24. The acetylene supply should always be cut off when changing the blowpipe or the oxygen cylinder.

25. If any leakage of oxygen or acetylene should be detected, it should be stopped at once or the cylinder should be removed to a safe place.

26. Portable fire extinguishers should be provided in readily accessible positions where oxy-acetylene welding is carried on.

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