facts, it appears that the retired officers constitute, as regards health, a selected class, consisting of men whose constitutions have been originally stronger than those of their brethren, and who have survived the effects of the Indian climate during the usual period of service there, or of men whose prudence may have so regulated their habits as to diminish the injurious effects of the climate, or pointed out to them the propriety of leaving it before their health had sustained irreparable injury.

Fires in London, with an Account of the London Fire-Engine Establishment.

THE formation of the "London Fire-Engine Establishment," which took place in the year 1832, has afforded an opportunity for collecting accurate information with respect to the number, causes, and extent of fires in the metropolis and its vicinity. It is surprising that, notwithstanding the obvious advantages of combination and unity of action on occasions when the lives and fortunes of thousands are often exposed to the most imminent risk, and with the successful example of the "Corps des Sapeurs Pompiers" in France, the insurance offices should so long have maintained the old and expensive system of separate engine establishments. So far back as the year 1808, Sir Frederick Morton Eden, then chairman of the Globe Insurance Office, entered into communication with the several offices for the purpose of inducing them to co-operate in the formation of a general fire-engine establishment. His proposition was, that each office joining the association should depute one or two members to form an engine committee, who should have control over the direction and expenditure of the establishment, but that no engine-houses or stables should be purchased or built without the concurrence of all the offices interested. Each office was, at the outset, to furnish a gang of 20 firemen, of whom 10 were to be first-class men, who should receive allowances for all fires they attended, and 10 second-class men, who were to be paid only when specially authorised to attend; and all future appointments and other matters respecting the firemen were to be managed by the engine committee. Each office was to pay an equal contribution towards the expenses of the establishment. This attempt, however, failed; for in December of that year Sir F. Eden writes, that "he had ascertained that it was in vain to expect co-operation from any other insurance office, except the Atlas, in the formation of a joint engine establishment, and that the Globe office had consequently abandoned the endeavour to effect it."

About the year 1825 three offices, the Sun, Union, and Royal Exchange, formed a union—the whole of their engines and men being placed under the charge of a superintendent, who took the command when the former were called out, and who checked the pay-bills. The Atlas and Phœnix subsequently joined the brigade.

It was not, however, until the year 1833 that this union extended itself to the principal remaining offices. Previous to 1831 considerable changes had taken place among the insurance offices: several of them had altogether declined fire insurance, and others had greatly reduced their engine establishments. It is stated that the number of fire-engines belonging to the different London companies in that year was

38, whereas four or five years previously it had amounted to 50. The number of firemen protected from impressment by the provisions of the Building Act amounted, in 1815, to 398. About the year 1831 some of the insurance companies proposed to form a general alliance, for mutually assisting each other at fires, with a view to the reduction of their separate expenses, which such a step would render practicable; and in the course of the following year the "London Fire-Engine Establishment" was formed, by the union of the following 10 insurance companies: the Alliance, Atlas, Globe, Imperial, London Assurance, Protector, Royal Exchange, Sun, Union, and Westminster. It commenced operations on the 1st January, 1833. The remaining seven insurance offices withheld their co-operation at the commencement, but, of these, five, having found the experiment successful, have since joined the brigade, viz., the British, Guardian, Hand-in-Hand, Norwich Union, and Phœnix. The two which remain separate are the County and the West of England. Of the new offices established since 1833, the Protestant Dissenters', Licensed Victuallers', and the York and London, have joined the brigade; the "South London and Independent West Middlesex" remains separate.

The affairs of the establishment are managed by a committee, consisting of a director or secretary from each of the associated insurance companies, which subscribe towards its support in certain agreed proportions.

The metropolis has been divided into the following five districts:—

North side of the river—

1st. From the eastward to Paul's Chain, St. Paul's Churchyard, Aldersgate-street, and Goswell-street-road.

2nd. From St. Paul's, &c., to Tottenham-court-road, Crown-street, and St. Martin's-lane.

3rd. From Tottenham-court-road, &c., westward.

South side of the river—

4th. From the eastward to Southwark-bridge-road.

5th. From Southwark-bridge-road westward.

The force consists of 96 men in permanent employment, consisting of 5 foremen, 10 engineers, 9 sub-engineers, 31 senior firemen, 35 junior firemen, and 6 extra men, under the direction of a superintendent. The number of engines is 33, and the following is a list of the stations at which they are kept, with the number of men at each:—

	No. of Engines.	No. of Men.
Watling-street (the principal station)	3	11
Wellclose-square	3	9
Farringdon-street	3	8
Chandos-street, Covent-garden	3	8
School-house-lane, Ratcliffe	1	2
Horseferry-road, Westminster	1	1
Pedlar's-acre, Lambeth (about to be removed to the station in the Waterloo-road)	1	1
Paradise-row, Rotherhithe	1	2
Jeffrey-square, St. Mary Axe	2	7
Whitecross-street	1	5
High Holborn, No. 254	2	5
Crown-street, Soho	2	5
Carried forward	23	64

Brought forward	23	64
Wells-street, Oxford-street	1	5
Baker-street, Portman-square	1	4
King-street, Golden-square	2	6
Waterloo-road	1	5
Southwark-bridge-road	2	7
Morgan's-lane, Tooley-street	1	5
Floating engine, off King's-stairs, Rotherhithe . . .	1	..
,, off Southwark-bridge	1	..
	33	96

The first four are double stations; the next four are stations of extra engines, which will account for the small number of men attached to them.

There are generally 1 engineer, 2 senior and 3 junior firemen, attached to each station. One-third of the men are constantly on duty at the different engine-houses, night and day; and the whole are liable to be called up for attendance at fires or for any other duty. In general the attendance is arranged as follows:—

If a fire happen in the 1st district, the whole of the men and engines of that district immediately repair to the spot, with two-thirds of the men and one of the engines from each of the 2nd and 4th districts, and one-third of the men from the 3rd and 5th districts.

If the fire happen in the 2nd district, the whole of the men and engines belonging to it repair to the fire, with one engine and two-thirds of the men from each of the 1st and 3rd districts, and one-third of the men from the 4th and 5th.

If the fire happen in the 3rd district, the whole of the men and engines belonging to it, with one engine and two-thirds of the men from each of the 2nd and 5th districts, and one-third of the men from the two remaining districts, attend the fire.

If the fire is in the 4th district, all the men and engines belonging to the district attend it, with one engine and two-thirds of the men from each of the 1st and 5th districts, and one-third of the men from the remaining districts.

If the fire happen in the 5th district, all the men and engines belonging to it, with one engine and two-thirds of the men from the 3rd and 4th districts, and one-third of the men from the remaining districts, attend.

If a fire happen on the boundary of a district, and it is doubtful in which district it has occurred, the whole of the engines and men of the two adjoining districts, and one-third of the men of the three remaining districts, proceed instantly to the spot.

The superintendent, upon an alarm of fire, immediately repairs to the spot, wherever it may be, and takes the command of the whole force. In his absence the senior fireman or engineer takes the command.

It is unnecessary to enlarge upon the advantages which such an united and well-organised system of action possesses over the former separate establishments, acting not only with independence, but with jealous rivalry of each other.

The superintendent has power to call in such additional force as he may require, and all the foremen and engineers have funds placed at

their disposal for remunerating persons who give an early alarm or whom they may employ, as well as those who assist to work the engines.

The men are clothed in a dark grey uniform, trimmed with red, with the number of each man marked in red on the left breast; they have black leather waist-belts, and hardened leathern helmets. The engines are upon the best construction, and are all provided with the following useful articles, adapted not merely to the suppression of fire, but to the saving of human life and the rescue of property;—several lengths of scaling ladder, each 6½ feet long, all of which may be readily connected, forming in a short space of time a ladder of any required height; a canvas sheet, with 10 or 12 handles of rope round the edge of it for the purpose of a fire-escape; one 10-fathom and one 14-fathom piece of 2½-inch rope; six lengths of hose, each 40 feet long; two branch-pipes, one 2½ feet and the other from 4 to 6 feet long, with one spare nose-pipe; two 6-feet lengths of suction-pipe, a flat rose, standing-cock, goose-neck, dam-board, boat-hook, saw, shovel, mattock, pole-axe, screw-wrench, crow-bar, portable cistern, two dog-tails, two balls of strips of sheep-skin, two balls of small cord, instruments for opening the fire-plugs, and keys for turning the stop-cocks of the water-mains.

The men receive the following wages: a junior fireman, 21*s.* a week; a senior fireman, 24*s.* 6*d.*; a sub-engineer, 26*s.*; and an engineer, or foreman, 28*s.* The foreman of a district receives, in addition, 1*s.* a week for each engine in his district.

A registry of all the fires is kept, from which, and from the papers of Mr. Baddeley, in the "Mechanics' Magazine," the facts upon which the following statements are founded have been taken, commencing at the year 1833, when the establishment first came into operation.

The total number of alarms of fires which have been attended by engines of this establishment, during the five years from 1833 to 1837, was 3359, or, on an average, 672 in each year, exclusive of fires in chimneys, known at the time to be such, which amount to a very large number, and are often attended with considerable danger.* But of this number, 343, or 68 in each year, were false alarms, and 540, or 108 in each year, proved to be alarms from fires arising in chimneys; there remain, therefore, 2476, or 495 in each year, which may be represented as fires, yielding an average of 41 fires a month, and, if chimneys on fire be included, an average of 50 a-month.

Thus, then, the number of alarms of fires attended by the London Fire Establishment averages 13 a week, or not quite 2 daily; and the number of actual fires averages 9½ weekly, or 4 in three days.

With respect to the false alarms, many have arisen from a laudable anxiety to prevent mischief; but several have been given without the slightest foundation, and from motives of sheer mischief, by persons who were shamefully regardless of the inconvenience and expense thus caused to the establishment and its servants, and of the protection of which the public is deprived by the engines being absent from their

* In 1836 the number of calls to chimneys on fire was 1530, and of false alarms, 623; but, as in some cases two engines from one station may have attended the same call, the number of chimneys may be stated at 100 per month, and of false alarms at 50 per month.

accustomed stations on distant useless errands. But another and remarkable cause to swell the number of false alarms has been rathe-frequent of late, namely, atmospheric phenomena, among which is the *aurora borealis*, popularly called the "northern lights." On one occasion, in November 1835, 12 engines and 74 men were kept in constant motion from 11 P.M. of the 17th, to 6 A.M. of the 18th, in pursuing a number of false alarms, caused by these appearances. Some of the engines reached Hampstead, and others Kilburn, before the mistake was discovered. On another occasion, in 1836, the rays of the rising sun at half-past 4 in the morning occasioned a glare of light in the sky to the east, which attracted a considerable number of engines, driven at conjecture—some along Ratcliffe-highway, some down the Commercial-road, while others went to Mile-end. On reaching these points, however, the appearances became gradually fainter; but the firemen came in sight of a second light, more to the south, which really proved to be a fire. On the 18th of October, in the same year, a most extraordinary appearance of the *aurora borealis* occurred, which served to deceive the oldest firemen: a crimson glare of light arose in the horizon to the north-east, about half-past 8 o'clock, P.M., which seemed to be caused by a fierce conflagration; and the resemblance was increased by what appeared to be clouds of smoke rising up after the glare, and breaking and rolling away beneath it. Thirteen engines and a large body of men went in search of the supposed fire; and crowds of people and carriages kept pouring from the west-end to witness it. The alarm upon this occasion was not confined to London: at Dublin, Leyden, Utrecht, Strasburg, Troyes, Rennes, and Nantes, the same alarm was created, and was attended with a similar turn-out of the firemen, military, &c.

Of the 2476 fires, the premises were—

Wholly consumed in	145	instances, or	5·8	per cent. of the whole number.
Seriously damaged in	632	,,	25·6	,, ,,
Slightly damaged in	1699	,,	68·6	,, ,,
			100·	

But it must not be supposed that the houses in the first class, which consists of those buildings in which the fire originated, and which were totally destroyed, were those in which the greatest amount of damage was sustained. If, therefore, the two first classes be added together, it will appear that, of the actual fires which occur, nearly one-third, or 31·4 per cent., commit serious damage.

It is of importance to examine why, in the instances of buildings totally destroyed, the efforts of the firemen have been unsuccessful in repressing the fire before it has attained to such a height. The following is an analysis of the 145 instances in this class. 30 occurred at such a distance from the nearest station as to preclude the possibility of timely assistance being rendered by the London firemen. It is necessary to observe that there are no limits of distance within which this establishment confines itself. If a fire appears in the horizon, or if information is furnished of a distant fire, the appointed engines start in the direction with post-horses, notice being sent forward to prepare relays; and in this manner it frequently happens that the London engines arrive at the spot before the engines of the neighbouring pa-

rishes. Among the distant places at which these engines have attended, are Brentford, Barnes, Richmond, Putney, Bromley, Croydon, Barnet, Uxbridge, Finchley, Woodford-bridge, and Cranford-bridge, which is 15 miles from town. In 20 instances, the total destruction of the premises has been solely attributable to the late and scanty supply of water which was obtained. This is a serious evil, which calls loudly for remedy; indeed, considerable improvement in this respect has taken place during the last 5 years in parts of the metropolis, particularly in Southwark: in 1837 no premises were totally destroyed through the want of water, and the supply is stated to have been generally good, although in some instances considerable delay has occurred in procuring it. 44 fires occurred in buildings filled with oil, tar, turpentine, and other highly inflammable substances, or in carpenters', cabinet-makers', coach-makers', and other shops, which are so highly combustible, that it is next to impossible to extinguish a fire when it has once spread, and the firemen have no chance left of doing more than preserving the adjoining buildings. In 26 instances the premises were so small as to be nearly destroyed before an alarm could be given at the nearest stations. In 7 instances the buildings were very old, chiefly built of wood, and offering great facilities for the spread of fire; and in 4 the buildings fell down from age before the fire had made much progress. In the remaining 14 instances, the buildings in which the fire originated were so completely on fire before an alarm was given, that it was found impossible to save them from destruction. These fires also were mostly in the outskirts of the metropolis, and in several instances occurred in very small buildings.

The following is a tabular view of the preceding causes of total destruction—

	No. of Instances.		
Distance from London	30	=	20·7 per cent.
Insufficient or tardy supply of water .	20	=	13·8 ,,
Combustible nature of buildings . . .	44	=	30·3 ,,
Small size of ditto	26	=	17·9 ,,
Excessive age of ditto	11	=	7·6 ,,
Extent of fire before arrival of engine	14	=	9·7 ,,
	145	=	100· ,,

It may here be mentioned, that the number of buildings destroyed in the 145 fires belonging to this class was 182, or, on an average, 1¼ to each fire. In 13 instances 2 buildings were destroyed by a single fire; in 4 instances, 3; in 6 instances, 4; in 2 instances, 5; and in 1 instance, 8.

From an examination of the returns for each year, to which we will now proceed, it appears that the total number of alarms has considerably increased within the period under review. In 1833 the total number was 592, and in 1837, 717, an increase of 21 per cent.; but it will be observed that this arises principally from the great increase in the number of false alarms and chimneys on fire, and that the increase of real fires is only from 458 to 501, or 9 per cent., while the increase of false alarms is 50 per cent., and that of chimneys on fire is 69 per cent.

Number of fires occurring in each year—

Years.	Fires.	Chimneys on Fire.	Alarms.	Total.
1833 . .	458	75	59	592
1834 . .	482	106	63	651
1835 . .	471	106	66	643
1836 . .	564	126	66	756
1837 . .	501	127	89	717
Total .	2476	540	343	3359
Average	495	108	68	672
Increase between 1833 and 1837	9 per cent.	69 per cent.	50 per cent.	21 per cent.

The year 1836 presents an unusual number of fires, and it is stated that a great increase occurred in the same year in all parts of the United Kingdom.

The preceding Table exhibits a gratifying fact, that while the number of fires has increased in a comparatively small ratio, probably not out of proportion to the great increase of buildings which have been erected during the last five years, the activity of the London Fire Establishment has been instrumental in extinguishing a much larger number of chimneys on fire; and that the effects of speedy attendance, proper organization, and enlarged experience, are already visible in the increased security of the inhabitants of the metropolis.

This fact is shown in a still stronger light by the following statement of the number of houses totally destroyed or seriously damaged, in comparison with the number slightly damaged, in each year:—

Years.	Wholly Consumed.	Average.	Seriously Damaged.	Average.	Slightly Damaged.	Average.
1833 . .	31	31	135	127	292	335
1834 . .	28		116		338	
1835 . .	31		125		315	
1836 . .	33		134		397	
1837 . .	22		122		357	
Total .	145		632		1699	
Average . . .		29		126		339

From this account it appears that the number of serious fires was considerably less in 1837 than the average of the preceding years.

The number of fatal fires, in which the lives of individuals have been lost, have greatly increased; but as these cases generally arise from delay in giving an alarm, the Fire Brigade is in no way responsible for them.

Years.	Number of Fatal Fires.	Number of Lives lost.
1833 . .	5 . .	12
1834 . .	5 . .	7
1835 . .	7 . .	11
1836 . .	14 . .	14
1837 . .	16 . .	13
Total .	47	57

Of the 11 deaths which occurred in 1835, it is expressly stated that only 2 could have been saved by any human effort; in the other cases life was extinct before an alarm was raised. Of the 14 cases in 1836, 8 were females, whose wearing apparel had caught fire, and who

received such serious injury as to cause death; and of the total number in 1837, 9 arose from the same cause, 5 being adults and 4 children.

The next point to be considered is the seasons at which fires occur, with the view of discovering any circumstances which will develop more clearly the causes of these disasters, and lead to their prevention. With respect to the seasons of the year, the following Table will show that the winter months do not exhibit so large a preponderance of fires as might be expected. It is true that December presents not only the largest number, on the average of the five years, but that in each year, with one exception, the number which occurred in that month exceeded the average of the year: but the month next in order is May, and then follow March and July, which are within one of each other; indeed, so little variation does the season of the year, as regards heat and cold, make, that the number of fires in the months between May and October slightly exceeds that in the months from November to April, being 1241 in the former period, and 1235 in the latter.

A Statement of the Number of Fires in each Month of the five Years from 1833 *to* 1837.

MONTHS.	YEARS.					Total.	Average.
	1833	1834	1835	1836	1837		
January . .	47	32	38	56	34	207	41
February . .	29	40	40	41	39	189	38
March . . .	43	37	36	46	58	220	44
April . . .	29	27	45	43	31	175	35
May	48	37	35	57	48	225	45
June . . .	42	37	37	39	44	199	40
July	36	44	37	55	47	219	44
August . . .	39	49	48	35	43	214	43
September . .	39	40	35	43	39	196	39
October . . .	30	40	33	44	41	188	38
November . .	35	56	36	47	37	211	42
December . . .	41	43	51	58	40	233	47
Total . .	458	482	471	564	501	2476	496
Average .	38	40	39	47	42	41	..

On comparing the number of fires occurring on each day of the week, it appears that there is a slight excess on Friday, but not to such an extent as to furnish ground for any inference. There is, however, a decided falling off on Saturday, which occurs in each separate year; there is, therefore, reason for asserting the existence of some cause which occasions a smaller number of fires on that day than on any other day in the week. Sunday presents no exemption, which is consistent with the fact, that while on that day there are less fires in use for manufacturing or other processes, the danger of fires in private dwellings is greatly increased by the customary absence of a large portion of the middling and lower classes from their houses on that day, without any person being left at home to guard the premises. It is a fact, that a large number of fires occur in small and humble private buildings on

the Sabbath evening, as well as in manufactories, in which the usual fires are necessarily maintained during that day, but which are usually left without proper attendance. Hence some of the most extensive conflagrations in these manufactories and warehouses occur on Sunday evening or Monday morning, the fire having smouldered unseen during the whole of the Sabbath.

Number of fires which occurred on each day of the week, during the 4 years from 1834 to 1837 :—

Days of the Week.	Total.	Average.
Monday	278	69
Tuesday	291	73
Wednesday	289	72
Thursday	299	75
Friday	304	76
Saturday	259	65
Sunday	298	74
Total	1975	494
Average	..	70

It will be interesting to examine the hours at which fires chiefly occur, and the following table will exhibit that fact very clearly. It appears that the number of fires is at the minimum from 5 till 9 o'clock in the morning, when it begins slightly to increase until 5 in the afternoon; at which hour the rate of increase becomes considerable, and continues until 10 and 11 o'clock, when the number is at the maximum; from which time it gradually declines until the dawn. Nearly one-half of the total number, or 48 per cent., occur between the hours of 7 in the evening and 1 in the morning; and nearly three-fifths, or 57 per cent., between 6 and 2. The steadiness of the rate, both of increase and decrease, is worthy of notice.

Number of fires which occurred at each hour, during the 5 years from 1833 to 1837 :—

Hours.	Total No. of Fires.	Per-Centage Proportion.	Hours.	Total No. of Fires.	Per-Centage Proportion.
A. M. 5	50	2·02	P. M. 5	98	3·96
6	61	2·46	6	115	4·64
7	47	1·90	7	122	4·93
8	51	2·06	8	182	7·35
9	50	2·02	9	188	7·63
10	61	2·46	10	199	8·04
11	70	2·83	11	197	7·96
12	82	3·31	12	165	6·66
P. M. 1	77	3·11	A. M. 1	129	5.21
2	80	3·23	2	113	4·56
3	87	3·51	3	80	3·23
4	84	3·39	4	88	3·55

The following statements exhibit the number of fires which have occurred within and without the city walls during the 5 years from 1833 to 1837. In the second number of this Journal it was stated, in an article upon the Metropolitan Police, that the number of fires observed and reported by that force amounted to 240 in 1836, and to 229 in 1837; but it appears that the number attended by the London Fire Establishment was just double that amount in both years, exclusive of fires in the city, which are not taken into account by the Metro-

politan Police. Some portion of this difference may arise from the circumstance of the Engine Brigade attending fires beyond the jurisdiction of the police; but this will scarcely explain so great a discrepancy.

The average annual number of fires within the city was 71; of burning chimneys, supposed to be fires, 10; and of false alarms 8: without the city, the average annual number of fires was 422, or 6 to 1, as compared with the city; the average annual number of chimneys on fire was 100; and of false alarms 58. It is a remarkable fact, that the proportion of houses totally destroyed within the city, which might be supposed to be very great, on account of the usually crowded position, the aged condition, and defective construction of the buildings, is, on the contrary, very small. Out of the 145 instances of premises totally destroyed, only 7 were situated in the city; which, in proportion to the total number of fires, gives 1 case of total destruction to 51 fires within the city, and 1 case in 15 fires without the city. The number of fatal fires within the city is equally small: out of the 57 lives lost by fire in the 5 years, 4 only were lost in the city, being 1 in 89 fires, whereas, without the city, the number was 1 in 40 fires. Two causes probably combine to produce this striking difference; first, the crowded state of the buildings in the city, which tends to the immediate discovery of a fire before it has acquired much force; and secondly, the greater proximity of the engine stations, which affords the means of communicating the alarm more rapidly to the firemen.

Number in 5 Years.	Within the City.	Average.	Without the City.	Average.
Fires	356	71	2111	422
Chimneys, supposed to be fires	50	10	500	100
False Alarms	41	8	292	58
Fatal Fires—Number	7	1·4	138	27

The next important branch of the enquiry relates to the nature of the premises in which fires have occurred, and the occupations of their inhabitants, which will afford the means of estimating the comparative liability to fire of any particular trade. The subjoined list contains this information, care having been taken to distinguish between the fires which have originated in that portion of the building appropriated to trade or manufacture, from those which have happened only in the dwelling parts; the latter being classed among the private houses:—

A List of the Occupations of Premises in which more than 6 *Fires have occurred during the Five Years from* 1833 *to* 1837.

Apothecaries	7	Brought forward	305
Bagnios	9	Churches	10
Bakers	71	Coach-makers	14
Beer Shops	8	Coffee-Roasters	7
Booksellers, Binders, and Stationers	27	Coffee-shops and Chop-houses	16
Brokers and Dealers in Old Clothes	24	Colour-makers	6
Cabinet-makers	32	Distillers (including illicit)	13
Carpenters	92	Drapers and Mercers	20
Chandlers	14	Dyers	6
Cheesemongers	7	Eating-houses	18
Chemists	14	Farming Stock	16
		Feather Merchants and Dressers	7
		Firework-makers	9
Carried forward	305	Carried forward	447

Brought forward	447
Foundries	12
Gas-Works	13
Grocers	23
Haberdashers, &c.	9
Hat-makers	25
Hotels	10
Houses — Private	909
Houses — Under Repair	23
Houses — Unoccupied	26
Lamp-Black-makers	8
Lodging-Houses	169
Lucifer Match-makers	14
Marine Stores (Dealers in)	8
Oil and Colourmen	41
Painters, Plumbers, and Glaziers	7
Printers	12
Public Places and Theatres	14
Carried forward	1780

Brought forward	1780
Rag Merchants	7
Sale Shops and Offices	174
Ships (including Steam Vessels)	21
Stables	41
Tailors	12
Tallow-Chandlers	18
Tinmen, Braziers, &c.	28
Victuallers	156
Warehouses	26
Wine and Spirit Merchants	21
Workhouses	10
	2284
Total of Trades in each of which less than 6 fires occurred	192
	2476

From this statement, it appears that the number of private and lodging-houses amounts to 1125, or 45 per cent. of the total number. Next in frequency stand sale-shops or offices, which belong to no particular trade; the number of these is 174. Among the trades, victuallers have an unenviable pre-eminence; the number of fires in this class of houses amounts to 156. Many of these have originated in the highly-improper practice of entering vaults and cellars with candles, or other exposed lights, from which sparks drop among the straw with which such places abound, and cause immediate ignition. Next in order stand the carpenters, then the bakers, oil and colourmen, stables, cabinet-makers, tinmen and braziers, &c., booksellers, binders, and stationers, warehouses, hat-makers, brokers and dealers in old clothes, grocers, ships, wine and spirit sellers, drapers and mercers. In the remaining trades, for which the reader may refer to the list, the number of fires amounted on an average to less than 4 in each year.

We will only call attention to the large number which took place on the premises of Lucifer-match-makers, which considerably exceeds that among firework-makers, and which have now become so frequent as to form a class among the causes of fires, which we now proceed to describe.

Every endeavour is used by the firemen to ascertain the causes of fires, and it will be seen from the following statement, that in a large proportion of cases they have been successful. Indeed, from the great promptitude with which attendance is now given, the proportion of cases in which the cause was undiscovered during the last year is very small. A perusal of this table is calculated to convey a useful lesson; for it is evident that a large proportion of the fires arise from carelessness, and that a very moderate share of attention would suffice very materially to reduce the number of these disastrous occurrences.

A Statement of the Causes which have led to Fires, as far as the same could be ascertained, in each year from 1833 *to* 1837.

CAUSES.	1833	1834	1835	1836	1837	Total.
Accidents of various kinds, ascertained to be for the most part unavoidable	83	40	14	11	17	165
Apparel ignited on the person	..	..	..	7	7	14
Candles, setting fire to bed-curtains	..	115	52	71	47	368
,, ,, window-curtains	..		22	35	29	
,, various accidents with	56	34	36	51	49	226
Carelessness, palpable instances of	28	..	19	18	7	72
Children playing with fire	..	..	5	6	18	29
Fires, sparks from	..	..	..	7	10	17
,, kindled on hearths or other improper places	7	..	9	5	5	26
,, portable charcoal	..	..	..	2	..	2
Fire-heat applied to various trades & manufactures	31	15	39	34	22	141
Fireworks	..	..	3	..	5	8
Flues—stopped up, defective, or ignited	71	65	69	72	53	330
Fumigation, incautious	..	3	7	5	2	17
Furnaces overheated, &c.	..	11	2	9	12	34
Gas, sundry accidents from escape of	20	25	39	38	25	153
,, accidents in lighting of					6	
Gunpowder	3	3	..	1	3	10
Intoxication	..	2	3	..	2	7
Lamps, sparks from	..	..	..	2	3	5
Linen, drying or airing before fires	..	..	22	31	48	101
Lucifer-Match-making	..	..	..	..	8	8
Ovens—overheated, defective, &c.	6	..	..	6	3	15
Shavings—loose, ignited	..	6	9	13	8	36
Spontaneous combustion of coals	1	..	..	..	..	1
,, ,, hay and straw	3	1	3	1	..	8
,, ,, lamp-black	..	..	1	..	..	1
,, ,, lime	..	3	4	3	..	10
,, ,, rags	3	..	1	1	3	8
,, ,, soot	..	..	..	2	..	2
,, ,, tan	..	1	..	..	1	2
Stoves & Stove-pipes—defective, overheated, &c.	18	20	11	28	28	105
Stoves, drying	..	..	..	..	8	8
Suspicious	..	..	..	..	7	7
Tobacco—smoking	..	6	4	1	3	14
Wilful	3	9	6	8	5	31
Total Discovered	333	368	380	468	444	1993
,, Undiscovered	125	114	91	96	57	483
Total number of Fires	458	482	471	564	501	2476

From the above it will appear, that during these five years the causes which have led to fires have been ascertained in 80 out of 100 cases, but that in 1837 the proportion was 89 per cent. The number of accidents not distinguished has also decreased from 83 to 17 during the five years. These two facts combine to show an increase of alacrity and skill on the part of the firemen, and have afforded the means of giving a more minute description of the causes of fire than was practicable at the commencement of the period.

It will be observed that accidents from candles form by far the largest class in the above Table, amounting to within a fraction of 30 per cent., or 3 in 10, of the whole number of fires the causes of which were discovered. In the three last years a distinction is made between accidents arising from the ignition of bed-curtains and that of window

curtains, from which it appears that of the total number of fires occasioned by candles, 43 per cent. arose from the setting on fire of bed-curtains, 22 per cent. from the setting on fire of window-curtains, and 35 per cent. from various other accidents. The defective construction and imperfect cleansing of flues, chimneys, and stoves, prove the next most fruitful source of damage; they amount to 22 per cent. of the whole number, the proportion of flues to stoves being as 3 to 1. The number of accidents from gas amounts to $7\frac{1}{2}$ per cent., or 1 in 13, and those from fire-heat, applied to various trades and manufactures, to 7 per cent., or 1 in 14 fires It is only within the last three years that the number of accidents arising from linen being hung before the fire to dry or air has been distinguished: this appears to be a very frequent cause of fire; it amounts to nearly 8 per cent. of the fires whose causes were discovered in those years, or 1 in every 13 fires. The number of wilful fires in the five years was 31, or, on an average, 6 in each year; compared with the total number of fires whose causes were discovered, they were as 1 in 64. The number of fires from palpable instances of carelessness is considerable, and this class would probably be much increased if the origin of all the fires could be ascertained. There is no other large class of causes: but the following are worthy of notice:—apparel ignited on the person; children playing with fire; incautious fumigation; intoxication; lucifer-match-making; loose shavings ignited; spontaneous combustion of various substances, and tobacco smoking.

The next Table will show the causes of fires in the different classes of buildings or trades before noticed, as furnishing the largest number of fires, which will, in some measure, afford the means of discovering the circumstances that have a particular tendency in each trade to cause these disasters.

An Account of the Causes, as far as the same can be ascertained, which led to Fires in those Classes of Buildings in which more than 20 *Fires occurred during the Five Years from* 1833 *to* 1837.

CLASSES.	Curtains.	Candles.	Trade.	Flues.	Stoves.	Children.	Incautious Fumigation.	Gas.	Tobacco Smoking.	Steam.	Spontaneous Combustion.	Other Causes.	Unknown.	Total.
Private Houses, occupied.	417	40	..	178	5	24	14	3	1	..	..	13	214	909
Lodging-Houses . . .	103	8	2	14	..	10	1	1	3	..	..	4	23	169
Sale-Shops or Offices . .	..	6	4	22	10	..	..	55	..	1	1	1	74	174
Victuallers	23	6	6	34	7	..	..	17	8	..	..	1	54	156
Carpenters	..	4	48	3	1	1	..	2	..	..	..	..	32	92
Bakers	..	2	42	6	..	..	..	7	..	..	..	1	12	69
Oil and Colourmen . .	..	6	15	1	..	..	..	3	..	..	1	1	14	41
Stables	..	9	..	5	..	..	..	..	..	..	3	1	18	36
Cabinet-makers . . .	..	1	10	3	..	..	..	..	..	..	..	..	17	32
Tinmen and Braziers, &c.	..	..	17	1	1	..	..	..	..	..	..	..	9	28
Booksellers, &c. . . .	..	1	3	2	1	..	..	9	..	..	..	..	11	27
Warehouses	..	1	..	4	2	..	..	..	..	..	1	2	16	26
Hat-makers	..	..	16	4	..	..	..	3	..	..	..	1	1	25
Brokers, and Dealers in Old Clothes . . .	2	..	2	2	..	2	..	..	..	..	1	2	13	24
Grocers	..	1	1	1	..	..	..	7	..	..	..	..	13	23
Ships	..	..	4	..	3	..	1	..	..	3	4	..	6	21
Wine and Spirit Sellers .	..	..	12	2	1	..	..	..	..	..	..	5	1	21
Drapers and Mercers . .	..	3	..	1	..	..	..	14	..	..	..	..	2	20

It has before been stated, that when fires originated in the dwelling part of premises in which trades or manufactures are carried on, they have been classed among the private dwellings. This will account for the accidents arising from the setting fire of curtains being confined in the above Table to private or lodging-houses and victuallers, with the exception of two instances, which occurred in the houses of dealers in old clothes.

From an examination of the causes of fire in the separate classes of buildings or trades, it appears that, in private houses, accidents from curtains being set on fire amount to 60 per cent., or 6 out of 10 of the fires whose origin has been traced; and in lodging-houses it amounts to 70 per cent., or 7 out of 10. The principal remaining causes in this class of houses follow in the annexed order: flues ignited, accidents from candles, children playing with fire, and incautious fumigation. In sale-shops and offices more than half the fires arose from accidents by gas, and a third from the ignition of flues and stoves. Out of 102 fires on the premises of victuallers, 41 arose from flues and stoves, 23 from candles, 17 from gas, and 8 from tobacco-smoking. In the remaining trades the fires were chiefly occasioned by the various processes carried on upon the premises, with the exception of booksellers and stationers, grocers, and drapers or mercers, in which accidents from gas largely preponderate.

The total number of buildings in which gas was used was 806, and the number in which it was not used was 1670, or rather more than 2 to 1. The number of fires arising from gas was 153, which is rather less than 1 in 5, compared with the number of houses in which it was burnt.

In stables the largest number of fires have arisen from sparks dropping from candles among the straw, and in this class there were 3 instances of spontaneous combustion. The latter cause originated 4 fires in ships.

Although this Table does not upon the whole present any results which might not, upon reflection, be expected, yet it may serve to suggest to persons engaged in particular trades the necessity of using greater precaution against those accidents to which they are thus shown to be peculiarly liable.

The extent to which persons have protected themselves from the consequences of fire by insurance is shown in the following statement for the years 1836 and 1837.

Number of instances in which insurances had been effected—

On the building and contents . . .	342	= 32 per cent.
,, only	120	= 11 ,,
On the contents only	180	= 17 ,,
Neither insured	423	= 40 ,,
Total . .	1065	

If this calculation holds good for the whole of London, two-fifths of the houses in the metropolis are entirely uninsured, and one-third only are insured for both the buildings and contents. The number insured for the contents exceeds that insured for the building.

We will conclude with an enumeration of the principal large fires which have occurred in the metropolis during the period under review,

which may serve, at some future period, as an interesting record. These happily are not very numerous, being only 5 in the 5 years, exclusive of the Royal Exchange, which occurred in January, 1838.

1834, 16th October, Houses of Lords and Commons.
1835, 2nd March, Silver-street, Golden-square.
1836, 26th ,, Western Exchange, Burlington Arcade.
,, 30th August, Fenning's Wharf.
1837, 28th December, Davies's Wharf.
1838, 10th January, Royal Exchange.

In the above list of fires are included only those at which it is believed that a gross loss of upwards of 20,000*l.* was sustained, including insured and uninsured: at all the others the loss was supposed to be under that sum, with the exception of 2 sugar-houses, which are generally expected to be burned down when fairly on fire. These great losses were, in the opinion of the superintendent of the Fire Brigade, attributable either to the nature of the buildings or goods, or to a want of an early supply of water. The Houses of Parliament and Royal Exchange arose from the first of these causes, long galleries, wooden partitions, and a total want of party walls, besides the immense quantity of timber about those old buildings. Many other public buildings are in the same state; the roof of Somerset House is continued round the whole building; and there is no doubt that if a serious fire were to take place there the effects would be most destructive. Silver-street and Burlington Arcade were caused by the light nature of the buildings and the intimate connection at the back; at Burlington Arcade there was also a want of water for some time at the south end of the arcade. The destruction at Fenning's and Davies's wharf arose principally from the inflammable nature of the goods, and, at the former place, from the great extent of the buildings; one building was twice, and another one-and-a-half times the size allowed by the Building Act; and, strange as it may seem, one at least of those warehouses is built up again in direct contradiction to the said Act. The greater part of the large warehouses in the metropolis are above the size permitted by the Building Act. At Davies's Wharf there were 5000 barrels of rough turpentine and 800 tuns of oil, and the heat of this fire was so great that a cast-iron water-pipe *outside* one of the warehouses was melted. It is also worthy of remark, that this fire was caused by the men working in the turpentine-warehouse with naked lights, although about ten months before, when the superintendent of the brigade visited all the large warehouses with two surveyors from the insurance offices, they were most particularly cautioned against that dangerous practice.

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