

The London ambulance service. : Reports, etc., containing information collected by the General Purposes Committee of the Council with reference to ambulance provision existing in London, and in provincial and continental cities and towns, for dealing with cases of accident or sudden illness in the streets or other public places. / G.L. Gomme.

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Gomme, George Laurence, 1853-1916.
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Publication/Creation

London : Printed for the London County Council by Jas. Truscott and Son, 1902.

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THE LONDON AMBULANCE SERVICE.

Reports, etc., containing information collected by the General Purposes Committee of the Council with reference to ambulance provision existing in London, and in provincial and continental cities and towns, for dealing with cases of accident or sudden illness in the streets or other public places.



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G. L. GOMME,
Clerk of the Council.

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THE LONDON AMBULANCE SERVICE.

(i.) Prefatory note by Sir William J. Collins, chairman of the Ambulance Sub-Committee of the General Purposes Committee.

1. A consideration of the ambulance service of London naturally falls under the following heads, viz.—

- (a) A description of the existing services.
- (b) The question as to whether or not these are adequate.
- (c) A comparison with the systems in operation in other cities and towns.

2. *The existing services.*—The medical officer's report sets out in some detail the present services from which it will be seen that these are in the hands of the following—(i.) the police; (ii.) the St. John Ambulance Association; (iii.) the Bischoffsheim service and (iv.) the Volunteer Medical Staff Corps.

The police, who in most cases have the first handling of street accidents, are provided with hand-stretchers and wheel-litters, and opportunity is afforded to constables for instruction in first-aid. For rapid transport only three horsed-ambulances exist, maintained by private effort, at Rochester-row, Carter-street, and Stoke Newington police-stations, and a charge is made to the public for their use to cover the payment for the horse, driver and cleansing; these are not kept in constant readiness, but on each occasion when requisitioned a horse and driver are supplied from a contractor. The St. John Ambulance Association trains in "first-aid" and provides litters and appliances at certain fixed stations, but except at three of these no officer is on duty. The Bischoffsheim service also provides at fire brigade stations and other fixed points wheeled litters and stores, but has no officer on duty. The Volunteer Medical Staff Corps renders valuable ambulance service on rare and special occasions such as public processions. Thus, so far as accidents are concerned, horsed-ambulances are practically non-existent in London.

Although much is done by these organisations, there is no uniform adequate and co-ordinate system for dealing with street accidents in London and no central supervising authority in quick touch on the one hand with casualties as they occur and on the other with the hospitals in which they can receive prompt attention. In out-lying districts there are naturally fewer facilities than in central ones for dealing with street casualties. The telephone is not utilised. On the other hand the ambulance arrangements for the conveyance of those certified to be suffering from infectious diseases are already adequately provided by the Metropolitan Asylums Board, and are in striking contrast to this lack of provision for street casualties.

3. *Question of adequacy.*—In order to ascertain what are the actual means at present in vogue for the conveyance of persons suffering from the results of accidents or sudden illness in the streets or other public places, the Sub-Committee placed itself in communication with the metropolitan hospitals, some 30 of which receive such cases in London. A record was kept, at the request of the Sub-Committee, at several of the large London hospitals for a period of four weeks, of the actual mode in which cases of accident and other casualties were brought to the hospitals. Of 994 injured persons arriving at 10 hospitals otherwise than on their own legs, 642 came in cabs or carts, 302 in different kinds of ambulance, and 50 by other means of conveyance. That is to say nearly 70 per cent. of the casualties at present conveyed to hospitals by some vehicle or other are taken in cabs or carts and not in ambulances.

From the figures that have been furnished for the year 1899, it would appear that nearly 10,000 street accidents are dealt with by the metropolitan police in the course of the year. In the E division during the six months ended February, 1902, the police ambulance was used 110 times, the Bischoffsheim ambulances 56 times and cabs 120 times.

No witness who appeared before the Sub-Committee considered that the present system of dealing with street casualties in London was adequate. Nearly all advocated the use of more rapid means of transport of the sufferer to the hospital. Horsed or motor ambulances, either in addition to or in substitution of hand stretchers and litters, were recommended. The use of cabs or carts for casualties where the nature of the injury was either undetermined or such as to be likely to be complicated or augmented by placing the injured person in a cab was condemned by all. Dr. Perry, the superintendent of Guy's Hospital said "it is very painful to watch the arrival of accidents at hospitals under the present system." The use of the telephone for prompt summons of rapid means of transport to the injured, and his equally prompt removal to hospital were suggested rather than the elaboration of means of treatment on the spot.

4. *A comparison with the ambulance systems in provincial and foreign cities and towns.*— From the Medical Officer's report it would appear that in some provincial towns and in certain Continental and American cities more modern and efficient systems of ambulance service are at work than is the case in London.* Horsed ambulances summoned by telephone are employed at Liverpool, Birkenhead, Manchester, Newcastle, Huddersfield, Bolton, Burnley, Hull, Sheffield, Leeds and Wolverhampton. In some cases the police, and in others the fire brigade, have the working of the ambulances. The system introduced by Captain Wells, by means of which telephonic messages may be sent from fire-alarm posts, and which has been adapted to the 792 posts in London, has been utilised in Liverpool for the purpose of summoning ambulances in case of street casualties. The mode in which this has been effected will be found in an appendix to Dr. Collie's evidence on page 32. In New York, New Orleans, Paris and Vienna there are organised systems of town ambulances well worthy of attentive study (see pp. 16-20).

The comparison of London with provincial towns is of course complicated by the fact that in their case there is not the same divided jurisdiction over the police and the fire brigade as there is here. It will be remembered that this dual control was not the plan originally entertained. The Select Committee of the House of Commons which was appointed soon after the disastrous Tooley-street fire in 1861 recommended that the duty of fire extinction in London should be entrusted to the police. The Government did not, however, approve this proposal, and so it came about that the Fire Brigade Act of 1865, which terminated the responsibilities of the parochial authorities and the insurance companies for the extinction of fires in London, also transferred to the Metropolitan Board of Works the duty of protecting life in case of fire. This duty had been previously discharged by "The Royal Society for the Protection of Life from Fire," an incorporated association which had commenced its operations in 1844. As no arrangement had been made prior to the passing of the Act of 1865 for relieving the society of its duties, it was not until July 1, 1867, that as the result of negotiations the fire-escapes and staff of the society were transferred to the Board, and the duty of saving life from fire and the extinction of fires were carried on by one organisation. At the present time first-aid is efficiently rendered by the Metropolitan Fire Brigade, but serious cases of burns are handed over to the Police and by them removed to hospitals.

Contrast is frequently drawn between the respect which law pays to property in comparison with that which it accords to the person; and while we have in London an elaborate organisation for protecting life and property when threatened with destruction by fire, there is no such adequate and properly organised provision at present available for securing prompt assistance when life and limb are endangered by accident, or when sudden sickness calls for aid in public places.

W. J. COLLINS.

* See also article on "Horsed Ambulances," by Hon. Dudley Leigh in "Nineteenth Century," October, 1896.

(ii.) Report by the Medical Officer.

24th July, 1901.

The Sub-Committee on 24th May last instructed me to report generally on the ambulance system in London. In accordance with this instruction the following report has been prepared which, as will be seen, in addition to the system in London deals with those in force in provincial towns and also in foreign countries—

For convenience this report is divided under the following heads, viz.—

- (1.) ARRANGEMENTS FOR AMBULANCE SERVICES IN LONDON AT THE PRESENT TIME.
- (2.) SIMILAR ARRANGEMENTS IN PROVINCIAL TOWNS.
- (3.) SIMILAR ARRANGEMENTS IN FOREIGN COUNTRIES.
- (4.) AS TO THE ESTABLISHMENT OF A HORSE-AMBULANCE SERVICE IN LONDON.

(1.) THE ARRANGEMENTS FOR AMBULANCE SERVICES IN LONDON AT THE PRESENT TIME.

Ambulance provision in the County of London relates to—

(A)—*The removal of cases of infectious disease.*

- (1) *To hospitals for this class of malady.*
- (2) *From one house to another.*

(B)—*Conveyance of non-infectious invalids.*

(C)—*Conveyance of persons who have met with accident or who are picked up in the streets suffering from epilepsy, apoplexy, alcoholism, etc.*

(A) (1)—*The removal of cases of infectious diseases to hospitals for this class of malady.*—The removal of the infectious sick to hospital is almost wholly performed by the Metropolitan Asylums Board. The land ambulances of this Board are stationed on premises situated as follows—

1. Eastern Ambulance Station, Brooksby's-walk, Homerton, N.E.
2. North - Western Ambulance Station, Lawn-road, Fleet-road, Hampstead (near Hampstead-heath railway station), N.W.
3. Western Ambulance Station, Seagrave-road, Fulham (near West Brompton railway station), S.W.
4. South-Western Ambulance Station, Landor-road, Stockwell (near Clapham-road railway station), S.W.
5. South-Eastern Ambulance Station, New Cross-road (near Old Kent-road railway station), S.E.
6. Brook Ambulance Station, Shooter's-hill, Kent.

At these stations are maintained a number of carriage ambulances and horses which, accompanied by a driver and nurse, proceed to all parts of the metropolis for the removal of infectious persons. Each station is in telephonic communication with the central office in Norfolk-street, Strand, and an application at this office for the removal to one of the Board's hospitals of a patient suffering from smallpox, fevers or diphtheria, is immediately followed by the departure of a fully-equipped ambulance for the patient. Cases of smallpox are usually conveyed to one of the wharves of the managers where the invalid is transferred to an ambulance steamer and thus carried to one of the floating hospitals near Purfleet.

In addition to the above there are two ambulances belonging to the London Fever Hospital, Islington, as well as others belonging to one or two persons who are prepared to let out carriages on payment to those who may need them.

(A) (2)—*The removal of cases of infectious disease from one house to another.*—In accordance with the provisions of section 6 of the Poor Law Act of 1889 the asylum managers may allow their carriages to be used for the conveyance of persons suffering from any dangerous infectious disorder to and from hospitals and places other than asylums provided by the asylum managers, and may make reasonable charge for that use.

So far therefore as infectious diseases are concerned the arrangements of London are complete.

(B)—*Conveyance of non-infectious invalids.*—The conveyance of non-infectious invalids is undertaken by—

- (a) The St. John Ambulance Association, which possesses a number of ambulance carriages, to be had on application and payment at St. John's-gate, Clerkenwell.
- (b) Ambulances in the possession of livery stable owners.

(c) Ambulances belonging to some of the metropolitan hospitals and used for the conveyance of sick persons to these institutions.

(d) Conveyances belonging to the different Boards of Guardians and used for the carriage of paupers to workhouses and workhouse infirmaries.

(e) Ambulances belonging to some of the railway companies and used for the conveyance of sick persons to and from railway stations.

A charge is made for the use of all these carriages except those belonging to the Boards of Guardians. I believe it is customary to make some small charge for horse hire in connection with ambulances belonging to the hospitals.

There is need for some arrangement by which poor persons generally can secure the conveyance of their sick without the use of public vehicles which are ill adapted for the removal of persons suffering from many maladies, the charges made by owners of private ambulances being prohibitory for the poor.

(C)—*Conveyance of persons who have met with accident or who are picked up in the streets suffering from epilepsy, apoplexy, alcoholism, etc.*—The arrangements for the removal of persons suffering from accidents or who are picked up in the streets are more complex.

It cannot be said that London is entirely without arrangements for dealing with cases of accidents or of sudden sickness occurring in the streets, but neither can it be said that there exists any well co-ordinated system, the object of which is the prompt and speedy removal of the person or persons from the scene of the accident to a hospital in such a manner as to minimise to the utmost any harm which may result to the sufferer from the removal.

The existing services for dealing with persons suffering from accidents, or who are picked up in the street, can be most conveniently described in respect of each service. They are the following—

(1.) *The St. John Ambulance Association* or the Ambulance Department of the Grand Priory of the Order of the Hospital of St. John of Jerusalem in England.

(2.) *The Bischoffsheim Ambulance Service of London.*

(3.) *The Volunteer Medical Staff Corps.*

(4.) *The Police.*

(1.) *The St. John Ambulance Association.*—This association, which has its headquarters at St. John's-gate, Clerkenwell, is chiefly concerned in the training of men and women in first aid and ambulance work, the object being to provide skilled assistance of this sort in all districts, and especially in those localities where accidents are of frequent occurrence; it has already trained a large number of police and fire brigade men, and has placed stretchers at various places, and the police have largely purchased litters from the association. At the headquarters there is a plentiful supply of litters, stretchers, bandages, splints, etc., and a permanent staff of trained men. It has further a number of small stations, in each of which is a stretcher and hamper of stores, thus there are stations at (Report, 1899, St. John Ambulance Association)—

District.	Description.	Hours available.
1. St. John's-gate, Clerkenwell	Ambulance wagons, litters, stretchers, etc. ...	At all hours.
2. St. Paul's Cathedral ...	Ashford litter, stretcher, hamper, etc. ...	9 a.m.—6 p.m.; Sundays 2.30—8.30 p.m.
3. Duncan Memorial Ambulance Station, St. Clement Danes Church, Strand	Ashford litter, stretcher, hamper, etc. ...	9 a.m.—6 p.m. and 7 p.m.—11 p.m.
4. General Post Office ...	Box containing stretcher and first-aid appliances	At all hours.
5. Ludgate-hill railway-station	" "	" "
6. St. Pancras passenger-station	Ashford litter, etc.	" "
7. Bryanston Working Men's Club, Lisson-grove	Stretcher and small hamper	10 a.m.—12.30 a.m.
8. 44, Clarendon-road, Highgate	Stretcher and first aid appliances	At all hours.
9. Borough of Hackney Club, Haggerston	Ashford litter, stretcher and first-aid appliances	"
10. Hyde-park-corner	Ashford litter, etc.	"
11. The Winchester-hall hotel stables, Highgate-hill	Litter and first aid appliances	"
12. St. James'-vicarage, Muswell-hill	" "	"
13. 6 and 7, Borough-market, S.E.	Stretcher and small hamper	During business hours.
14. South Metropolitan Gas-Works, Canal-bridge entrance, Old Kent-road, S.E.	Ashford litter and first aid appliances ...	At all hours.
15. The Children's Home, Bonner-road, E.	Litters, stretchers and first aid dressings, antidotes, nourishments, etc.	This station is under the control of the authorities of the home and is available at all hours.

District.	Description.	Hours available.
16. Harlesden-lane, near Royal Oak	Ashford litter, stretcher, etc.	At all hours.
17. Toynbee Hall, Commercial-street, E.	Stretchers and first aid appliances	9 a.m. to 11 p.m.
18. Kilburn Provident Medical Institute, 1, Greville-road, Kilburn	Ashford litter, stretcher, etc.... ..	These eight stations were established and are kept up by No. 9 District Metropolitan Centre of the St. John Ambulance Association
19. Saxby and Farmer's Signal Works, Canterbury-road, Kilburn	St. John Ambulance litter	
20. Queen's-park-station, Kilburn, L. & N.W. Railway	Stretcher	
21. Brondesbury-station, Metropolitan Railway	"	
22. West Hampstead railway-station	"	
23. Swiss Cottage railway-station	"	
24. St. Mark's Schools, Violet-hill	"	
25. 112, Shirland-road, Paddington	"	

At these stations, except the first three on the list, there are no men on duty. They are merely stations containing appliances available for the use of the public by anyone who knows where the stations are situated and how to use the appliances. These stations are periodically inspected by officials of the St. John Ambulance Association to see that the appliances are in proper working order. At the first three stations the staff in attendance is as follows—

At St. John's-gate—There are several paid officials as well as volunteers.

At St. Paul's Cathedral—One paid official.

At the Duncan Memorial—One paid official.

At the first of these, viz., St. John's-gate, the ambulance appliances include ambulance wagons, but these are not available for use in cases of accidents occurring in London day by day. Their use is limited to occasions of great public gatherings such as Lord Mayor's Day or the Jubilee processions, or for invalid transport across London from one railway terminus to another or to private houses.

At all the other stations the appliances include only hand ambulances.

The intention of the association may be understood from the organisation which has been developed in Kilburn. The Kilburn Provident Medical Institute is a central station at which are placed a Furley wheeled litter, a stretcher, an invalid chair, and an ambulance hamper; in neighbouring parts of the district are branch stations at which are deposited stretchers, thus medical aid can be obtained at the central station and first aid assistance from volunteers scattered throughout the district.

This is the beginning of a fairly complete system for London, but the association cannot with its present opportunities organise this throughout the metropolis. The idea is undoubtedly a good one, it would make stretchers available in all parts, and litters or the wheels upon which stretchers could be placed within easy reach of any locality where an accident happened; and would ensure the removal of the injured by skilled persons competent to undertake this duty.

It will be seen from what has been said above that the functions undertaken by the St. John Ambulance Association are—

(1.) The training of men and women in ambulance and first aid work.

(2.) The organising of an ambulance and first aid service for use in connection with large assemblages of persons on the occasions of public processions or other gatherings, the appliances such as ambulance wagons, litters and temporary dressings, as well as the staff volunteers, being provided by the association. This work is carried out in conjunction with the police.

(3.) Invalid transport.

(4.) The establishment in different parts of the metropolis of stations fitted with hand ambulance appliances, which are available for use in cases of emergency by the public or the police. No staff is kept at these with three exceptions.

(2.) *The Bischoffsheim ambulance service of London* (formerly known as the Hospitals Association Street Ambulance Service).

This service was established in 1890, and has been conducted at the expense of Mr. H. L. Bischoffsheim.

The Association has prepared a scheme for placing a wheeled litter and stores at different places throughout the metropolis, which are available for use by the police or other persons who have knowledge of their situation and knowledge of how to use the appliances.

The Hospitals Association differs from the St. John Ambulance Association in that it takes no part in the training of bearers and those who can render first aid, and in that it does not make any special preparations for special occasions when a large concourse of persons is expected. It is concerned only with making provision of hand ambulances for use at any and all times.

The stations at present provided are the following—

Postal district.		Postal district.	
E.C.	Carter's, 47, Holborn-viaduct.	S.E.	Fire brigade station, Evelyn-street, Deptford.
"	St. Bartholomew's Hospital.	"	Fire brigade station, Crystal palace-parade.
"	Royal Exchange.	W.C.	Strand, St. Clement Danes.
"	Bishopsgate-street fire brigade station.	"	King's College Hospital, Lincoln's-inn.
"	Tabernacle-square, Old-street.	N.	North-Eastern Hospital for Children, Hackney-road.
W.C.	University College Hospital.	"	Great Northern Central Hospital, Holloway-road.
"	Theobald's-road fire brigade station.	"	Metropolitan Hospital, Kingsland-road.
"	Royal Free Hospital, Gray's-inn-road.	N.W.	Camden-town fire brigade station, King's-road, N.W.
E.	Bethnal-green, Green-street fire brigade station.	"	Albert-road cab rank, Regent's-park.
"	Vine House, Mile-end-road	"	Cab rank, Midland-road.
"	London Hospital, Whitechapel.	W.	Faraday-road fire brigade station, Kensington.
"	New Dundee-wharf, 82, Wapping High-street.	"	Royal-crescent cab rank, Notting-hill.
"	East London Hospital for Children, Glamis-road, Shadwell.	"	Archer-street cab-rank, Notting-hill.
"	York-street, Ratchiff, E.	"	Pickering-place cab-rank, Paddington.
"	Junction of East and West India Dock roads.	"	St. Mary's Hospital, Paddington.
"	All Saints' Church, Poplar.	"	Maida-vale cab rank, Paddington.
"	Poplar Hospital for Accidents, East India Dock-road.	"	Langham-place cab rank, Paddington.
S.E.	St. Thomas' Hospital.	"	Middlesex Hospital.
"	Fire brigade station, Waterloo-road.	"	Fire brigade station, Great Marlborough-street.
"	Cab rank, Blackfriars-road.	S.W.	Cab rank, St. James'-square.
"	St. George's-road, Southwark (near Elephant and Castle).	"	Cab rank, Eccleston-bridge.
"	Marshalsea-road, Borough.	"	Sloane-square.
"	Guy's Hospital.	"	Queen's-gate.
"	Fire brigade station, Camberwell.	"	Town-hall, King's-road, Chelsea.
"	Rye-lane, Peckham.	"	Vauxhall-cross.

In the annual report for 1899 as to the work of this service the following statement is made—
 "Prior to the establishment of the Hospitals Association Street Ambulance Service at the end of 1889, cabs were almost exclusively employed in the transport of cases of street accident, with the well-known result—frequent conversion of slight casualties into grave injuries. During the first three years of the existence of the service our ambulances superseded the cab as a means of transport for cases of accident in one out of every three cases. In round figures 3,400 cases were removed on our conveyances in these three years, an annual average of 1,133. Your Committee were able to announce last year that no fewer than 2,209 were dealt with, and this year they are happy to announce a still further increase, the number removed during 1899 being 2,319."

"The following table shows the number of accidents removed by the ambulances in the years 1891-1899—

	1891-2.	1892-3.	1893-4.	1894-5.	1895-6.	1896-7.	1897-8.	1898-9.	1899-1900.
Fire brigade stations ...	96	113	132	109	170	201	197	221	237
Hospitals ...	222	479	582	928	576	460	629	601	633
Thoroughfare stations ...	660	670	604	500	810	775	1,051	1,140	1,239
Other stations ...	—	5	40	115	115	248	236	247	210
	978	1,267	1,358	1,652	1,791	1,684	2,113	2,209	2,319

"Once again the Committee have to express their regret that these figures are incomplete and that as thoroughfare stations become, by reason of their greater usefulness, more numerous, this incompleteness will probably increase. In the case of fire brigade stations and hospitals a record is kept of the use of the ambulance, but at thoroughfare stations this is impossible, except in the instances where the station is near a cabmen's shelter and the shelter attendant is sufficiently interested to keep a record."

This service is one for providing stations throughout the metropolis fitted up with hand ambulance appliances for use in cases of emergency by the police or the public—one of the functions also undertaken by the St. John Ambulance Association.

(3) *The volunteer medical staff corps*—This corps is primarily a military organisation, but on special occasions such as public processions it has worked with the police. This is a duty also shared by the St. John Ambulance Association. Apart from giving assistance on occasions such as these the volunteer medical staff corps has no concern with the removal of accidents to hospitals at ordinary times.

(4) *The police*—The metropolitan police possess both hand ambulances and wheeled litters for use in cases of emergency, and members of the force receive on joining, instruction in ambulance and first aid work as part of their ordinary training. In addition to this a large number of policemen have voluntarily attended courses of instruction given by the St. John Ambulance Association and have received certificates of efficiency.

One or more ambulances or litters are kept at all police stations, but in the absence of any means of telephonic communication with the police station, by which the ambulance can be readily obtained, their use must be largely restricted, in cases requiring prompt action, to such accidents as occur in the immediate vicinity of the police stations. The custom of the police is not to leave the sufferer, and the course taken in any given case depends largely upon the circumstances of the accident, the place where it occurs and the presence in the crowd of persons ready and capable of giving assistance to the police. Thus if it occurs near a police station, or a place where an ambulance has been deposited by the St. John Ambulance Association, or the Hospitals Ambulance Association, the ambulance would be used; if however these be at some distance and a cab is readily available, its services would be requisitioned, or before resorting to a cab, if there be a doctor living near at hand, he may be called out to see the injured person before removing him to hospital or to his private abode.

The police also possess three horse ambulances, but these are not equipped and staffed, nor are they in direct telephonic communication, so as to be available for use at a moment's notice. On each occasion, when required, horses are obtained from a contractor.

On occasions of great public gathering the police largely, if not entirely, depend upon the voluntary organisation provided for the occasion by the St. John Ambulance Association, the work being carried out by the two bodies in conjunction. On such occasion the service is organised on a military model, viz., a base hospital (one of the general hospitals), a field tent, with a horse ambulance, at which first aid can be given in the neighbourhood of the crowd, and in connection with this, bearer parties with hand ambulances amongst the crowd.

From what has been said in the foregoing account of ambulance service in London it will be seen that there does not exist a service, fully equipped, adequately staffed, and connected by means of a system of communication with different parts of London as to ensure speedy removal to hospital in the best available manner of all persons who may meet with accidents or be overtaken with illness. Such means as exist at the present time, together with the fact that a large number of persons are trained by the St. John Ambulance Association in first aid and ambulance work must do much good in alleviating suffering in the removal of persons to hospital. Owing, however, to the absence of any system of communication the use of the ambulance stations which do exist must be largely limited to their own immediate neighbourhood, and in view of the fact that the ambulances are all hand ambulances, considerable loss of important time must often occur in getting cases to hospital.

(2.) THE ARRANGEMENTS IN PROVINCIAL TOWNS FOR AMBULANCE SERVICES, SO FAR AS RELATES TO ACCIDENTS OR CASES OF EMERGENCY.

With a view to obtaining information as to what, if any, provision has been made in provincial towns in regard to an ambulance service for use in cases of accidents or sudden emergency as distinct from ambulance services for the transport of cases of infectious disease, I addressed a circular letter to the medical officers of health of the chief provincial towns, taking for this purpose the 32 large towns included in the list of the Registrar-General.

The information which they have been good enough to send me I have set out in tabular form.

From this it appears that in 16 towns a horse ambulance service has been provided, while in 12 towns only hand ambulances are used.

Regarding those towns where a horse ambulance service has been established, it will be observed that it has been provided in many cases by the local authority, in some by private subscriptions, and afterwards taken over for maintenance and control by the local authority, and in one case by the local hospital.

A special staff is not provided, but the services are worked by means of the police force or the fire-brigade staff, and in nearly all cases the horse ambulances are kept ready for use at either police or fire-brigade stations. In the case of the service at Liverpool—which appears to be the one most systematically worked out—the ambulances are kept at the chief hospitals and at a police station. The means of communication depended upon in these towns for summoning the ambulance are largely street telephonic call-boxes.

In the information obtained from Sheffield reference is made to the increasing number of calls received since the service was organised. The chief constable who supplies the information states as follows—"The ambulance service is much appreciated in this city and the number of calls is increasing yearly as will be seen from the following table—

Year.	Calls received.	Year.	Calls received.
1891	48	1897	79
1892	44	1898	100
1893	32	1899	138
1894	25	1900	298
1895	33	To July 2nd,	
1896	55	1901	296 "

The following extracts from the Annual Report for 1899 of the St. John Ambulance Association as regards horse ambulance services are of interest.

"At Birkenhead where the horse ambulance is worked by the fire brigade, the men are all certificated by the St. John Ambulance Association. The superintendent reports that the ambulance has received 433 calls in 1899, all of which have been responded to, being an increase of 43 calls compared with the year 1898. The distance travelled was 1,304 miles, or an average of three miles per journey, and the work is still increasing owing to the public recognising the advantages of obtaining the service of the horse ambulance when accidents occur. At Halifax the horse ambulance has been out 198 times, and travelled 620 miles in 1899, and one of the leading surgeons informs me, 'I don't know what we should do without it at the infirmary.' In his last annual report the head constable of Liverpool states under the heading—

"*Services rendered to the public.*

"*Ambulance work.*—The new police horse ambulance system came into operation on the 25th April last, and there are now six fully-equipped ambulances, stationed as follows—Royal Infirmary, Royal Southern Hospital (the Royal Southern Hospital for the present provide their own ambulance, which, however, is worked in harmony with the police system), Northern Hospital, Stanley Hospital, Central fire station (for night service) and Old Swan police station (for outlying districts).

"Number of turns out—

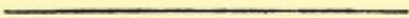
"25th April to December 31st 1,173."

The information as to the area which can be served by one ambulance shows that there is considerable difference on this point in the different towns. It is possible that explanation of this is to be found partly, at all events, in the fact that the establishment of horse ambulance services in this country is a matter of recent date, and that at the present time they are still in an experimental stage, except, perhaps, in the case of one or two of the larger towns such as Liverpool. Other reasons which would however account for difference as to the area served, are differences in the character of the town, such as the amount of heavy traffic and the nature of the industrial occupations and consequent difference in the number of accidents.

In Liverpool there are five ambulance districts for an area of 13,236 acres, or one ambulance to about 2,650 acres, assuming that the districts are equal, though this may not be so.

This is the smallest area served by one ambulance, and from this size they range to 22,000 acres in the case of Bradford.

TOWNS WHICH HAVE PROVIDED OR POSSESS A HORSE AMBULANCE
SERVICE.



TOWNS WHICH DO NOT MAINTAIN OR POSSESS A HORSE AMBULANCE
SERVICE.

Towns which have provided or

Town.	Has an emergency ambulance service been established, if so, by whom. 1	Whether a horse or hand ambulance service. 2	Area which ambulance serves. 3
✓ Liverpool	Yes, by Corporation (Watch Committee)	Horse ambulances, supplemented by hand ambulances	City area of 13,236 acres is divided into five districts, and in each is a horse ambulance
✓ Birkenhead	Yes, a horse ambulance, bought by subscription, has been presented to Corporation	Horse ambulance. Other ambulances are kept at the hospitals and other institutions	One horse ambulance serves the whole district. Area, 3,850 acres
✓ Manchester, 544,894 ...	Yes, by Corporation (Watch Committee)	Horse ambulance service	Two horse ambulances at present in use. Four will be provided, one for each police division of the city.
✓ Oldham	Yes, presented to town and now maintained by Watch Committee	Horse ambulance service...	One horse ambulance serves the whole town. Area 5,000 acres about. Occasionally used for surrounding district
✓ Bradford	Yes, provided by subscription and afterwards taken over by Corporation	A horse ambulance and hand ambulance service	One horse ambulance serves the area of sanitary district. Area 22,000 acres
✓ Newcastle-on-Tyne ...	Yes, by the Watch Committee	Horse ambulance service	Two horse ambulances for the whole city area
✓ Huddersfield	Yes, by the police	Horse ambulance service	One horse ambulance for 11,852 acres
✓ Bolton	Yes, by private individual	Horse ambulance service	One horse ambulance for the borough (15,283 acres) and for short distances outside
✓ Blackburn, 127,527 ...	Yes, by private subscription	Horse ambulance service, and hand ambulances belonging to police	One horse ambulance for 6,973 acres
✓ Bristol	Yes... ..	Horse ambulance service with hand ambulances and stretchers at the police stations	...
✓ Gateshead	Yes, by police	Horse and hand ambulance service	The area served by a horse ambulance is 3,138 acres
✓ Burnley	Yes, partly by public subscription, partly by local authority	Horse ambulance service	One horse ambulance serves the borough. Area, 4,015 acres
✓ Hall	Yes. (1) Provided and maintained by private subscription. (2) By Corporation	(1) One horse ambulance. (2) Hand ambulances	(1) For whole city area. (2) For whole city area
✓ Sheffield	Yes, by local authority	Horse ambulance service (there are also private hand ambulances at all big works)	There are two horse ambulances for the city. Area, 19,651 acres

possess a horse ambulance service.

How staffed. 4	Location of ambulance. 5	Means for summoning the ambulance. 6	Expenses. 7
By men of the police force. The horses are provided by the police depot. If the hospitals so desire they can provide an ambulance surgeon	Four ambulances are kept at hospitals, viz., (1) Royal Infirmary; (2) Royal Southern; (3) Stanley; (4) Northern. One is kept at an outlying police station. For use during the night time for the four hospital districts, an ambulance is kept at the central fire station	By telephonic communication from all police stations and hospitals, also by a system of police telephone call-boxes throughout the city	Cannot be differentiated from general expenses of the horsing department of police.
By the fire brigade staff (13 permanent men), who are all instructed in ambulance work	Central fire station ...	By telephone. There are 34 telephone fire-alarm boxes in the borough which are used for ambulance calls	Cannot be differentiated from fire brigade accounts.
No separate staff. Worked by the police at each divisional station	At the police divisional station	Telephone communication between all police and fire brigade stations	Cost of each ambulance, £135 maintenance. Worked as part of police duties.
By two members of the fire brigade, who are instructed in ambulance work	Central fire station ...	No information ...	Not separable from fire brigade account.
The staff is provided by the fire brigade	Fire station ...	By application to the police department.	Horse ambulance, £123. Hand, £7 7s. Repairs, £37 4s. 3d. Ambulance classes, etc., £98 7s. 3d.
The staff of the department of the mounted police force	At police stations...	Telephones and fire alarm-posts (telephonic)	Ambulances, £87 10s., £97 3s.; repairs, £25.
By the police ...	At the fire station ...	Street telephone call boxes for ambulance and fire-alarms	No information.
By the Corporation fire brigade	At the Corporation fire station	Ordinary telephone and fire-alarm telephones	No information.
No special staff ...	Local livery stables ...	Either through the police or the infirmary	Initial expense about £100.
By the police ...	Central police station ...	No information ...	No information.
By the police ...	At police stations...	The ambulance can be obtained at any time by the police	Ambulance vans, £110; horse hire, £40 per annum.
The fire brigade ...	The fire station ...	By telephone ...	Cost of ambulance, £133. Maintenance not separable from fire brigade expenses.
(1) By members of St. John Ambulance brigade. (2) By the police. Each member of the force is expected to become efficient in rendering first-aid	(1) At an appointed station. (2) A wheeled ambulance at each police station and stretchers at the various fire-boxes.	(1) By telephonic communication between all parts of city and appointed station	...
No special staff. Worked by the fire brigade	One at the chief fire station, one at a police fire station	By telephone calls to station. Number of calls in 1891 was 48, but have increased considerably. In 1900 there were 298 calls	Ambulance, £130. One horse, £50. Maintenance not separated from fire brigade account.

Town.	Has an emergency ambulance service been established, if so, by whom. 1	Whether a horse or hand ambulance service. 2	Area which ambulance serves. 3
✓ Leeds	Yes. (1) By police. (2) By infirmary	(1) Horse and hand ambulance service. (2) A horse ambulance	There are two horse ambulances for the city area
✓ Wolverhampton ...	Yes. (1) By hospital; (2) by police; (3) by railway companies	(1) Horse and hand ambulances; (2) hand ambulances; (3) hand ambulances	...

Towns which do not maintain

✓ Plymouth	By local authority and by hospital	Hand ambulance service. No horse ambulance	Four hand ambulances for the whole town
✓ Sunderland ... ..	...	Hand ambulance service. No horse ambulance	Five hand ambulances at police stations. Also private one at ship yards
✓ West Ham	By police	Hand ambulance service. No horse ambulance	One hand ambulance at each police-station and private hand ambulances
✓ Nottingham	By Corporation	Hand ambulance service. No horse ambulance	Eleven hand ambulances for the town
✓ Portsmouth	By Watch Committee ...	Hand ambulance service. No horse ambulance	Seven hand ambulances for the town
✓ Brighton	By local authority ...	Hand ambulance service. No horse ambulance	Five ambulances for the town
✓ Derby	No public ambulance service		
✓ Norwich	By police	Hand ambulances ...	Two hand ambulances for the town
✓ Salford	By Watch Committee ...	Hand ambulances ...	Ten hand ambulances for Salford, Pendleton and Broughton
✓ Croydon	By police	Hand ambulances ...	Three hand ambulances for town
✓ Cardiff... ..	By police	Hand ambulances ...	Seven hand ambulances for town
✓ Birmingham	(1) By police and fire brigade; (2) by St. John Ambulance Association	Hand ambulances ...	Twenty-nine hand ambulances

How staffed. 4	Location of ambulance. 5	Means for summoning the ambulance. 6	Expenses. 7
(1) By the police. Ambulance when called first proceeds to hospital to obtain a medical man. (2) By hospital ...	(1) At central fire station. There is also a hand ambulance at each police station, 21 in all. (2) At infirmary (1) At hospital; (2 and 3) at police and railway stations	Both horse and hand ambulances can be called to any part by means of street telephone call-boxes By means of the telephone or by messengers	Horse ambulance, £90. Hand ambulance, £6. ...
or possess a horse ambulance service.			
No special staff	One at central police station; two at sub-police stations; one at hospital At five police stations ... Three are kept at central police station and single ones at eight other stations	............	............
217 out of 226 members of the police force have obtained certificates from St. John Ambulance Association and can render first aid	Three ambulances at chief police station and one at each district station	Constables on beat communicate with their respective stations by street telephones when ambulance is required	Initial cost about £100; maintenance about £10 per annum.
No special staff. The police act. Every policeman (except recruits) holds a St. John Ambulance certificate for first aid	One ambulance is kept at each police station	By telephonic or other message to nearest police station	Each ambulance, £11. Cost of maintenance not separate from police account.
By the police force, nearly all members of which are trained in "first aid" work	At the police station ...	...	...
No special staff; police act, 230 members of force have ambulance certificates	At police stations...	...	...
Police ...	At three police stations ...	...	...
Police ...	At seven police stations ...	...	...
Police and fire brigade ...	At police and fire stations, hospitals and railway stations	By telephone, call-boxes or messengers	Subject of horse ambulance service (three for city) under consideration of a sub-committee.

(3.) THE AMBULANCE SERVICES OF FOREIGN TOWNS.—Having regard more especially to the arrangements made for the removal to hospital of persons suffering from accidents or sudden illness in the street.

In the year 1890 the Foreign Office addressed a circular letter to Her Majesty's representatives at the chief foreign towns in Europe and in the United States requesting that information be forwarded as to the means adopted for "the ambulance transport of civilian sick and injured from their homes or the place of injury to the hospitals, or from the place of injury to their own homes."

The information which was obtained was presented to Parliament in the same year, and the following account as to the arrangements which existed at that time has been obtained from this parliamentary paper. Reference will only be made to those towns at which a horse ambulance emergency service had been established, and the account of which appears to be useful in connection with the purpose of this report—

NEW YORK CITY.

The ambulance service of this city is controlled by three separate departments, namely, the Police, the Health, and the Commissioners of Public Charities and Corrections.

The ambulance service is conducted by the respective departments as follows—

Police department.—As to persons taken ill or injured in the public places or streets, the policeman on post reports the matter at once to the nearest station-house by telephone, telegraph, or other expeditious way, and an ambulance-call is sent at once from thence to the nearest hospital provided with ambulances. Whether the injured or sick person is taken to his home or to hospital depends upon his condition. If such person desires to be taken to his home, and the surgeon sees no objection, this is done. A competent surgeon accompanies each ambulance, and his examination of the sick or injured person determines the first disposition of the case.

In addition to the street cases, there are many others in which ambulances are called to the station-houses, in order to secure the most expeditious surgical opinion and treatment. Of these, about one-half are taken to the hospitals, but the remainder, consisting of cases of delirium tremens, contagious diseases, profound insensibility from intoxication, insanity, parturient women, &c., which the general hospitals—those not entirely sustained by the City Government—decline to receive, are handed over to the Commissioners of Charities and Corrections, and are sent by them to institutions or asylums on islands adjacent to New York, specially under the Commissioners' control.

The total number of ambulances in use in the city of New York at the hospitals is 23, distributed as follows—

Hospitals—

Bellevue*	...	...	...	...	...	...	5
Harlem*	...	...	...	...	...	...	2
Gouverneur*	...	...	...	...	...	...	1
Ninety-ninth-street*	...	...	...	...	...	...	2
St. Vincent	...	...	...	...	...	...	2
New York	...	...	...	...	...	...	2
Chambers-street	...	...	...	...	...	...	3
Manhattan	...	...	...	...	...	...	2
Presbyterian	...	...	...	...	...	...	2
Roosevelt	...	...	...	...	...	...	2

23

* Under Department of Charities and Corrections.

In addition to these, ambulances are kept at the head-quarters of the Charities and Corrections and Health Departments namely—

Charities and Corrections, 3.

Health Department, 3, and 2 coupés.

Department of Public Charities and Corrections.—As to the means adopted by this department for ambulance transportation of the sick and injured, calls are received in the following manner—

1. Through the Police Department, by the officer on whose post the accident occurs reporting the case at the station-house. It is then transmitted by telephone to this Department through the Police Central office.

2. By an officer of the Fire Department sending a signal (twenty continuous taps) on the fire telegraph. This is done only in extreme cases, as when an accident occurs at a fire requiring a number of ambulances, when ambulances from all available sources are signalled for.

3. By relatives or friends making application to the Commissioners or the Warden of the hospitals under the control of the Commissioners.

4. On a physician's certificate that the patient, unable to pay for the same, requires hospital treatment.

Each ambulance is supplied with surgical appliances, medicines, &c., and a surgeon goes with each. On the arrival of the ambulance at the place where the accident occurs the patient's wounds are dressed, and, should he desire to go home, if the surgeon is of opinion that he may safely do so, he is taken there, provided he lives within the city limits.

Calls are received at all hours of the day or night, and the surgeons, drivers, and ambulances are ready for every emergency.

Health Department.—The ambulances of this Department (three in number and two coupés) are used only for the transportation of persons, sick with contagious diseases, from private dwellings, tenement houses, hospitals, and public institutions, to the hospitals of this department for their reception and treatment.

CHICAGO.

The system adopted in the city of Chicago for the ambulance transport of civilian sick and injured is that of patrol waggons under the charge of the police attached to nearly all the stations in the different police precincts. These are kept always ready, day and night, to answer a call

from any of the numerous police-alarm telephone boxes, where a signal-bell communicates with the nearest station, and on the receipt of the call the patrol waggon at such station is at once sent to the spot indicated.

There are at present thirty-four police stations and thirty-one patrol waggons in this city, and several hundred call-boxes. Every policeman, and some private persons, have a key of the call-boxes; a key is kept for public use at a drug store nearest adjacent to the box.

Each patrol waggon is supplied with a stretcher, medicine-chest, and instruments and appliances for the relief of the injured, and useful instructions and directions are issued to the officers in charge of the waggons for the immediate treatment of the most general and serious injuries. On arrival at the spot the first means of relief are taken, if necessary, by the police officers in charge of the patrol waggon in accordance with these directions, and if the injury is such that the person cannot be moved from the spot where found without danger, the waggon is sent for a doctor.

If the injured person is unknown, or insensible, he is taken to the County Hospital. At the request of the injured person he can be taken to any other hospital, or his own home. There are also three emergency hospitals in different parts of the city. No charge is made for the transport services rendered.

Besides the patrol waggons there is one ambulance waggon, lately presented to the city by a lady, which is also under the charge of the police, and it is expected shortly there will be four more waggons presented by private persons.

NEW ORLEANS.

The ambulance service of New Orleans is under the direction of the administrators of the Charity Hospital (who are appointed by the Governor of the State), and has been in operation for a little over five years.

The headquarters of the ambulance department are in a spacious and well-constructed building situated almost immediately opposite the hospital gates.

Its equipment is as follows—three waggons, seven horses, two drivers, two stablemen. Two resident students are on duty for twenty-four hours, and accompany the ambulance waggon upon a "call." Should a second "call" occur before the return, the next two students for duty accompany the ambulance.

The waggons are covered four-wheel vehicles, each drawn by a pair of horses. On the floor is a spring leather-covered bed which can be drawn out horizontally, and is fitted with handles and adjustable iron legs. This can itself be used as a stretcher in very bad cases, and there is a portable canvas stretcher besides, made in two pieces so as to be easily withdrawn from under a patient.

Each waggon stands ready provided with a medicine-chest containing the remedies usually required in cases of poisoning, burns, scalds, &c., chloroform hypodermic preparations, and restoratives. Also a stomach-pump, tourniquets, bandages, plaster, and all requisites for checking hæmorrhage and sewing up wounds.

The horses stand in stalls at each side of the waggon, their harness so arranged over the pole that it can be immediately adjusted. In front of the driver's seat is a gong, which can be struck in the streets as a signal to clear the way.

The "calls" are usually by telephone. There are many public telephone offices all over the city, and in its business portions, where accidents most commonly occur, private means of communication in this way are readily available, as no one would grudge the use of his instrument. The "call" goes into the library of the Charity Hospital, where it is verified and any special particulars obtained. Then it is wired over the way. I will suppose that it comes during the night. By one electric action a gong is sounded in the ambulance station and in the bed-room of the students on duty above, the chains of the horse-stalls drop, a trap in the ceiling opens, and the officers on duty slide down a polished steel shaft just behind the waggon, which by the time they can do so, is harnessed and ready to start. The average time between the striking of the gong and the departure of all concerned upon their mission is fifteen seconds. They have gone forth in ten.

The route is given by intersection of streets thus: "Carondelet and Poydras." (An equivalent might be, "Fleet and Chancery," meaning corner of Fleet-street and Chancery-lane.) Nearly all the streets in New Orleans run either parallel or at right angles to each other at intervals (known as "blocks") of 100 yards.

When the ambulance arrives on the scene of the accident the students do all that is immediately required for the patient, and he is taken either to the hospital for regular treatment or to his own house, in which case, if he be able to pay it, a charge from 2 to 10 dollars is made according to circumstances, or from 8s. 4d. to £2 1s. 8d. In this way many persons who have been poisoned by accident or malice (and both causes are frequent), who have received wounds or injuries causing serious loss of blood or prostration of the system, who are suffering from fits (easily mistakeable for drunkenness), and other causes calling for immediate medical attendance, owe their lives to this admirable service.

COPENHAGEN.

According to the instructions for the executive police of Copenhagen, it is the duty of the police patrol, in cases where any individual is attacked by illness in the streets, or is otherwise found to be in a helpless condition, to render immediate assistance, and, if necessary, take steps to call medical aid to the spot as soon as possible, or else to have the person carried either home or to the hospital. This instruction is of daily application in cases of sickness or injury in the streets, the persons being in most instances conveyed to the various hospitals of the town, the usual means of conveyance being cabs.

In the year 1886 there was founded in the town by a number of private individuals the society known as "The Society of Medical Watch Stations," the object of which is to insure to the inhabitants access to medical help in the night-time, when occasion may require, and to provide materials for temporary surgical appliances, and for the convenient transport of injured persons, whether by day or night. This society caused to be established in April, 1887, with

the consent of the police, cases of bandages and provisional surgical appliances in the seven police stations of the town, as well as an ambulance stretcher, constructed after the model of those used in the army; and later, in some of the police stations, a hand-cart for the transport of injured persons. As, however, both stretcher and hand-cart were found to be unsuitable, and therefore were seldom used, the society resolved to attach an ambulance carriage to every police station. Such carriages have accordingly been placed at two of the police stations in the inner town, and in the course of the present year it is anticipated that they will be supplied to the remaining stations. The horse to draw the carriage may be requisitioned from the nearest cab to be found, and the cabman is paid as for an ordinary course by the hour. The carriage can be summoned by telephone, either through the police wire, or through that of the Telephone Company, or through a private wire; and every police patrol carries in his note-book an instruction, drawn up by the society, showing what telephones are handy to his beat for summoning the ambulance carriage.

VIENNA.

The Volunteer Humane Society of Vienna ("Wiener Freiwillige Rettungs-Gesellschaft") was established after the burning of the Ring Theatre in 1881. It is supported entirely by voluntary contributions, and its services to the public are given gratis. Its sphere of operations is limited to the police area of the metropolis.

In case of fire the society can count upon the assistance of a volunteer fire brigade, consisting of nearly 400 men, and furnished with a steam fire-engine and the necessary apparatus. It also commands the services of 200 trained watermen, with boats and the newest appliances for saving life.

Two hundred and twenty-one doctors and one hundred volunteer assistants (all medically educated) are at the society's disposal.

During the last eight years there have been 12,159 cases of illness and injuries treated, and 24,000 sick transported, altogether 36,159 cases dealt with by the society. It has rendered assistance on 2,139 separate occasions at fires, railway accidents, &c., and on 1,467 occasions it erected temporary ambulances at places of public resort.

The society owns twenty ambulance waggons for the transport of sick and wounded, together with a large number of other vehicles and sanitary appliances.

Twenty-five doctors, whose residences are distinguished by coloured lamps, have given their services gratuitously to the society for night work. Their addresses are published in a handbook containing a list of telephone numbers and the places, such as police stations, theatres, tramway offices, &c., where stretchers are to be had; also the names and addresses of the sanitary assistants ("sanitätsmänner"). The society requests that the telephone may be employed for communicating with its officials as being more expeditious than the telegraph.

Although the society limits itself to dealing with cases of illness, accidents, &c., which occur in the streets of Vienna and in public places, exception is made when the civil or military authorities require assistance if a medical man sends a certificate stating that a patient requires to be immediately transported to a hospital. Cases of ordinary infectious disease are, however, not transported by the society, but an exception is made in view of an epidemic of cholera, in which event a special service of ambulances would be organised.

PARIS.

The system of ambulances in Paris is entirely in the hands of the police. Paris is divided into 20 arrondissements, each one of which contains four police stations and a commissariat de police. A stretcher and a box of medical stores, necessary for the first dressing of a wound, is kept at each police station and at the commissariat, and a list of directions as to the manner of treating various injuries is put up in each police station. Stretchers and boxes of medical stores are also kept at a certain number of fire brigade posts, at a certain number of guard-rooms of the republican guard, at all the cemeteries, and at some octroi posts. At any public fete or demonstration where a large crowd is likely to be assembled, the police organise a special ambulance known as an "ambulance volante." It consists of a doctor and two policemen, with a stretcher and a box of medical stores. The police possess in Paris 219 hand stretchers, requiring from two to six men to carry them, and 16 stretchers on wheels requiring only one man; these latter are kept at the central police station of each arrondissement.

In the event of a person receiving a slight injury in the street, the *gardien de la paix* takes him to the police station, or, if there is not one near enough, to a chemist's shop, and despatches one of his colleagues to fetch the stretcher from the nearest police station; he is then conveyed home or to the hospital. If he is in a position to defray his own expenses, he does so, if not, they are paid by the *Préfecture de Police*.

Should the accident be of a more serious nature, the *gardien de la paix* telephones to the Hospital St. Louis, the headquarters of the "ambulances urbaines," and a special ambulance carriage, one of which is always kept ready harnessed, provided with a stretcher, and containing the medical stores necessary for the first dressing of a wound, is at once despatched, accompanied by a doctor, who conveys the injured person to the hospital or to his home.

The "Ambulances Urbaines" is a private philanthropic enterprise started at Paris two years ago, and recognised by the police as being of the greatest service. This society operates in a radius of several arrondissements, which is being constantly enlarged. It has a private telephone, with thirty-five points of communication established in chemists' shops and police stations, the central office being the Hospital St. Louis.

In the event of a person undergoing an injury in his own house, and wishing to be conveyed to the hospital, there is no organised system of ambulance transport; the police station will sometimes, on application, lend their stretcher, but in this case a regular report has to be made to the *Préfecture de Police*.

In regard to Paris information of more recent date is contained in papers and in a statement by Dr. Nachtel, forwarded to the Council in connection with the question of the need of an emergency horse ambulance service for London.

A report on "*Les Ambulances de la Ville de Paris*" (*Ambulances Municipales et Ambulances Urbaines*), dated June 1st, 1898, gives the following information—

The ambulance services of Paris at that date consisted of—

1. *Ambulances municipales.*
2. *Ambulances urbaines.*

The first of these is concerned with the removal of persons ill with contagious or non-contagious complaints. The second deals with the removal to hospital of persons suffering from accidents, and is never available for the transport of the contagious sick.

It was in 1887 that, on the initiative of Dr. Nachtel, a station for a service of the *Ambulances Urbaines* was established at the Hospital of St. Louis. In 1889 the town of Paris established two stations for the service of the *Ambulances Municipales*, one in the Rue de Staël, one in the Rue Chaligny.

In 1895 the service of *Ambulances Urbaines* at the St. Louis Hospital was taken over by the municipality, who shortly after decided to adopt a scheme for providing a complete ambulance service for the removal of persons suffering from illness or from the effects of accident. After receiving the report of a special commission on the subject, the municipality determined in favour of the construction of new ambulance stations, the provision of additional staff, and the provision of greater facilities being given to the public for obtaining the use of the ambulances; and it was to commence at once and to proceed with the elaboration of the scheme as quickly as possible. The report states that it was anticipated that by January 1st, 1899, ten stations (including two special stations), comprising four stations for the service of the *Ambulances Urbaines*, four for the service of the *Ambulances Municipales*, and two for both services, would be in working order.

The staff at each ambulance station comprises telephone attendants, coachmen, and ambulance assistants, the latter, in the case of the *Ambulances Urbaines*, being senior medical students.

As this report deals with the subject of an ambulance service for London for cases of accidents only it will not be necessary to refer further to the Paris system, except as regards the service which exists for bringing speedy means of removal to the scene of an accident, and for this purpose to give here the description of it by Dr. Nachtel, which he recently forwarded to the Council, of the service which was initiated by him in 1888 in connection with the Hospital of St. Louis, and which was taken over by the municipality in 1894.

During the six years we were working as a private charitable society we succoured about 200 persons per month, or 2,400 per year. I should state that the area within which we operated covered about one-sixth of Paris.* The cost of carrying on the Saint-Louis station was about twelve hundred pounds per annum.

I planned the Paris ambulance system in a way conformable with Parisian customs. The French place great faith in the ability of the nearest chemist to attend to victims of street accidents. Utilising this fact, I caused a number of chemists' shops to be connected by direct wires with the Saint-Louis Hospital. When a person is injured or taken ill in the street at any point within the area served by the Saint-Louis station he is immediately taken to the nearest chemist's shop; the hospital is advised by wire; the horse, which stands ready harnessed, is attached to the ambulance; a printed form is put into the driver's hands, marked with the time the call was received and the time at which the carriage is starting, and in a few minutes the ambulance is at the scene of the accident. The doctor who is in the carriage makes a rapid diagnosis of the case and applies a dressing, for which he has all the necessary appliances in the ambulance. The vehicle then conveys the patient either to his home or to a hospital. It should be understood that the patient is taken to the nearest hospital. If this should not be the Saint-Louis Hospital the medical attendant telephones from it to the latter for instructions, and very often finds that a fresh call has been received and that it is necessary for the ambulance to go to the scene of another accident. As soon as the ambulance returns to headquarters the form on which the doctor has entered the name and address of the patient, the nature of the accident, &c., is handed in to the hospital to be filed.

Now, it is very important that I should give a description of the ambulance. I do not exaggerate in the least when I say that the carriage used in Paris is the outcome of several years' reflection and experiments. It is a unique vehicle, for the New York ambulances are very inferior to it.

In the first place, it should be borne in mind that the carriage must be built with a view to the conveyance of an injured person. Having to serve a different purpose from those intended for carrying sick people, it must be constructed on a different plan. It should fulfil the following conditions—

It should be sufficiently light to be drawn by one horse.

It must be spacious enough to contain two persons, one lying down and the other seated in such a position as to be able to attend to the first. It is also desirable that a second injured person may be conveyed, provided he does not need to be in a reclining position.

The bed or stretcher on which the injured person is placed must admit of being put in and taken out of the carriage without jolting the patient.

The carriage should have good springs, so as to avoid shaking.

As to the first point, the Paris ambulance is light enough to travel, when loaded, at the rate of eight miles an hour with a single horse.

The second point calls for some brief explanations. The New York carriage is open at the sides, the openings being fitted with curtains. This is a defect, for there is no protection from the cold. Besides, the floor is entirely occupied by the stretcher and mattress on which the patient is placed, so that the doctor is obliged to stand on the step, holding on by a strap. This is another and more serious defect, seeing that, apart from the doctor's dangerous and inconvenient position, he is practically unable to render the patient any assistance during the journey,

* Area of Paris—8,000 hectares, about 19,768 acres, say 20,000 acres, therefore one-sixth of Paris is about 3,300 acres, or five square miles.

however urgently it may be needed. Furthermore, the presence of a mattress, which cannot well be changed for each patient, causes the carriage to appear less clean than it should do. The vehicle used in Paris, on the other hand, has glass windows which, if air is wanted, can be lowered, while the blinds afford a protection from the sun and from the gaze of too inquisitive persons. The doctor has room to sit beside the patient, or, if necessary, move round him. There is no mattress and no sheet but only a blanket, which can be used or not. The patient lies on a stretcher, of which the following is a description—

The stretcher question is a difficult one. Stretchers, as usually constructed, are either in wood and canvas or entirely in wood, and covered by a mattress. In either case the stretcher is necessarily very large and therefore requires a very large carriage to contain it. Besides, the canvas becomes brittle, and, like the mattress, is always more or less dirty. Sometimes one or more stretchers in wood and canvas are suspended from the roof of the carriage. This solution of the difficulty may be necessary in the case of military ambulances, but it is only a *pis-aller*, as it is next to impossible to suspend the patient, who is first placed on the stretcher, without subjecting him to painful and even dangerous jolts. Moreover, there is still the drawback of the blood-stained canvas. Our stretcher is made of wickerwork, is constructed in one single piece, and follows the shape of the human body. The arms and legs rest in hollows, and the patient, having each part of his body supported, is in a comfortable position, while the apparatus occupies a minimum amount of space. At the head there is a leathern pad forming a pillow. It will easily be understood that a stretcher of this shape, built of such a light material and provided with rollers, can, if care is taken, be put into the carriage almost without any jolting. The small volume of the stretcher also enables it to pass up narrow staircases and be carried, either at the hospital or the patient's dwelling, to the very bedside. This is not the case with wooden stretchers. Another good feature about the wicker stretcher is that it can easily be cleaned with a sponge.

The necessity of placing the stretcher on the carriage-floor made it essential that the body of the vehicle should be well-hung. We have succeeded so well in this respect that in the Paris ambulances it is not at all difficult to write whilst the carriage is going at a fast speed along the paved streets.

The carriage lamps give light to the inside as well as externally. The ambulance is provided with splints and everything else that is necessary for a first dressing, as well as with a medicine chest. The driver can be communicated with from the interior by means of a speaking-tube. A bell, worked by the driver's foot, serves as a warning to clear the road, while a Red Cross flag floating above the carriage acts as an ocular sign that an ambulance is approaching.

Everybody will agree that, when an accident occurs, it is of prime importance to inform the ambulance station immediately. It is desirable that I explain how I came to organise this part of the Paris system, and how, in this as in many other respects, the Paris ambulances are superior to those of New York. At the latter city the fire-alarm system is also used for notifying accidents. This has the evident advantage of using one apparatus for two distinct purposes. There is, however, the drawback that, with an electric fire-alarm, the point at which help is needed can only be indicated approximately. In the case of a fire this is not of great importance, because the presence of a crowd, or the presence near the alarm-box of the person who gave the alarm, is sufficient to direct the firemen to the exact spot. In the case of an accident it is not the same thing, and in New York the ambulance people have often been in doubt. It was the habits of the Parisians in cases of accident which led me to a better method. In Paris, as said above, when an accident occurs the first step is to take the injured person to the nearest chemist's shop. This was my starting point. I went to all the chemists within the area which we proposed to serve by means of the Saint-Louis station, and ascertained from each of them the number of injured persons brought to his shop per week. Out of about 200 chemists I selected 30, being those who had had the greatest number of accident cases brought to them, and in each of these 30 shops a telephone was placed, connecting it directly with the Saint-Louis Hospital. It is impossible to conceive of a more rapid call system. The alarm apparatus is placed exactly where it is most likely that the injured person will be brought; the call, "Come to No. . Rue .," is conveyed electrically, and in an instant the carriage, equipped with everything needful for affording succour, starts for the place where the injured person is lying.

Of course, in those neighbourhoods where there is no chemist's shop the call-apparatus can be placed in the police station, as has been done in Paris.

As to the medical attendants who accompany the ambulances, they are selected from those students who are in their last year, and they have to pass a special examination as to their fitness for this duty. It is highly important that the victims of accidents should receive the earliest possible attention, and this from qualified medical men. The persons' life often depends upon the promptitude with which efficient aid is rendered. In some cases a few moments' delay proves fatal. The medical profession know well that injured parts which have been in contact with septic substances, such as earth, coal, dust, &c., need to be disinfected immediately, and it is only to an ambulance system organised on the lines described that we can look for rendering this aid rapidly. A hemorrhage can quickly become dangerous; an ambulance-carriage provided with the proper appliances may reach the spot in the nick of time to save the person's life. A broken limb cannot be handled by the first-comer; it is a competent medical student, attached to the ambulance, who should place the temporary splints and see to it that the patient is not caused intense pain by being carelessly handled. In a case of poisoning, the use of the stomach-pump immediately after the absorption of the toxic substance may snatch the patient from certain death or at least save him from grave injury. We know that many accidents of all kinds occur daily, such as falls, burns of all degrees of severity, syncopes, cerebral and other forms of congestion, collapse through hunger, murders, suicides, confinements in public places, sudden indispositions, injuries caused by vehicles, explosions, fires and by machinery, &c., &c., and they can only be properly dealt with by means of a system of horse ambulances organised on the lines of the Paris "Ambulances Urbaines." Vienna, Berlin, St. Petersburg, Moscow, Warsaw, as well as many provincial towns in France, have followed the lead set by the French capital, and London, where such a system is perhaps more imperatively needed, is the only great European city lacking it.

(4).—AS TO THE ESTABLISHMENT OF A HORSE AMBULANCE SERVICE FOR EMERGENCY CASES IN LONDON.

The fact that in many towns both in the provinces and in other countries it has been considered advisable to establish and to maintain a horse ambulance service for emergency cases may be taken as evidence that such a service is of use and supplies a want which is not fulfilled by a hand ambulance service alone, at least so far as the more busy centres of population are concerned. If this is so as regards provincial towns it is to be expected that the same would apply to London, or at least to some portions of it. The County of London may, however, be regarded as containing districts comparable both to the busy industrial provincial town with considerable traffic in the streets, and to the quieter town such as those in which a hand ambulance service is still considered to meet the requirements of the district, and it is possible, therefore, that the provision of a horse ambulance service for the whole area of the county need not be considered, at all events in the first instance. It might be well in the first instance to initiate such a service tentatively in one part of London. In any case it is highly probable that a complete ambulance service for London would be found to be one which comprised both horse and hand ambulances in each ambulance district, that is to say the horse ambulance would be supplemented by hand ambulances. I believe this is the case in Buda-Pesth, and that it is proposed to add hand ambulances to the existing service in Paris. One or more ambulance districts might be established, and the number of these could afterwards be extended if found necessary.

If it were decided to establish such a service, the points which would present themselves for consideration include the following—

1. What part of London should be taken for ambulance districts?
2. What should be the area of the districts?
3. Where should the ambulance station be established?
4. What would be the best means for readily summoning the ambulance?
5. How should it be staffed?
6. What kind of horse ambulance should be provided?

Considering these headings in detail—

(1.) *Ambulance districts.*—The parts of London where it would be well to first form an ambulance district or districts would be those where during the daytime traffic is greatest and accidents are most likely to occur. With a view to gaining information on this latter point the annual report of the Commissioner of the Metropolitan Police has been studied, and from the report for 1899 the following table as to accidents coming to the knowledge of the police has been taken. This table refers to police districts and therefore includes areas part of which are without the county boundary. But for the purpose in view this is not of much moment. Two districts with the highest number of accidents, viz., Holborn and Whitechapel, are entirely within the county.

Return of accidents known to the police which occurred in the streets during the year 1899.

Police Division.	Accidents by which persons were killed.		Accidents by which persons were injured.			Order in relation to frequency of accidents.
	By day.	By night.	By day.	By night.	Total.	
A.—Whitehall	2	...	199	35	236	20
B.—Chelsea	6	1	315	61	383	14
C.—St. James's	4	...	436	122	562	6
D.—St. Marylebone	6	1	415	83	505	9
E.—Holborn	3	2	654	108	767	2
F.—Paddington	2	...	181	29	212	21
G.—Finsbury	14	...	391	64	469	12
H.—Whitechapel... ..	15	1	627	72	715	3
J.—Bethnal-green	5	...	234	29	268	19
K.—Bow	17	1	542	60	620	4
L.—Lambeth	13	1	656	153	825	1
M.—Southwark	14	3	509	68	594	5
N.—Islington	15	...	248	51	314	17
P.—Camberwell	5	3	337	45	390	13
R.—Greenwich	6	...	298	60	364	15
S.—Hamptead ... ..	...	...	256	34	290	18
T.—Hammersmith ... ..	...	3	422	54	479	11
V.—Wandsworth	8	...	490	50	548	7
W.—Clapham	16	3	387	88	494	10
X.—Kilburn	12	1	282	39	334	16
Y.—Highgate	15	1	436	64	516	8
Total	186	21	8,315	1,369	9,891	

2. *Areas of ambulance districts.*—As regards the area for which one ambulance station would serve, no precise statement can well be made. The area would depend on circumstances, such as the number of accidents during one day, the distance from hospitals, and the unequal distribution of the latter in relation to the area of London.

The information bearing on this point in the replies received from provincial towns, shows that the area for which one ambulance serves varies considerably, viz., from an area of about 2,650 acres

in Liverpool, to an area of about 22,000 acres in Bradford. Reference has already been made to the area served by one ambulance in the case of Paris (see information under heading Paris).

If, in establishing a horse ambulance service, it was decided to commence by forming one or two districts only, it would be better not to definitely settle the area which can be served by one ambulance station, but rather to map out an area provisionally and to lessen or increase it after experience had been gained.

In all probability, experience would show that an area which could be served by a one-horse ambulance station would vary according to the part of the county in which it was situated.

3. *The position of the ambulance station in each district.*—The ambulance stations would contain one or more ambulances ready to start at a moment's notice according to the character of the district.

The experience of provincial towns suggests that there is advantage in having the ambulance station at a police station, a fire station, or at a hospital. As regards the first two of these it must be borne in mind that in these towns the horse ambulance is worked through the police force or the fire brigade staff, and this fact has probably led to the use of these places as stations. In Liverpool, where the service is worked by the mounted department of the police force, and where the conditions to be dealt with are perhaps most like those of London, the hospitals are used as ambulance stations. There is obviously considerable advantage in this arrangement, and the adoption of a similar plan in London has much in its favour, but the fact that most of the hospitals in London are situated within a small area on the north bank of the river would render it necessary that stations at other places should be established.

4. *Means of communication with the ambulance station.*—The means which should be adopted for this should consist of a system of direct telephonic communication from various points to the ambulance station. The points of call should include police stations, railway stations, hospitals and street standards similar to those in use for summoning fire engines. A good position for the last would be at each of the principal cab ranks.

5. *The staff.*—This would have to be a special staff, and should consist of an attendant to receive calls at each station and a driver for each ambulance. It would also be well that provision should be made for despatching some one with medical and surgical knowledge to render first aid and attend to the sufferer on his way to hospital. In all probability it might not be necessary that this officer should be a qualified medical man, if persons willing to undertake the duty could be continually obtained from among senior students. For this reason, there would be considerable advantage in having ambulances stationed on or adjoining the premises of the general hospitals, but as has been already said, owing to the position of these hospitals horse-ambulance stations in other situations would need to be provided in a complete system of horse ambulances for the whole of London.

6. *The kind of horse ambulance.*—I have not sufficient experience of the different kinds of horse ambulances now in use in different towns to express any opinion on this point.

SHIRLEY F. MURPHY,
Medical Officer.

(iii.) Abstracts, prepared by the medical officer, from *Zur Organisation des Rettungswesen*,
by Dr. George Meyer, of Berlin.*

AMBULANCE SYSTEMS IN CONTINENTAL TOWNS.

Vienna.

The Vienna Volunteer Life-saving Society controls a central station, provided with accommodation for 30 carriages and stables for 19 horses. Many vehicles are always kept ready for use, and immediately a call comes, a medical man with sanitary staff and all necessary remedies starts at once for the place of accident. The kind of vehicle used by the Society takes the form of a carriage, the litter being placed on the lower part of the carriage and rolled inside. There are also numerous other means of conveying the sick, litters, hand stretchers, etc., always ready. The staff is in uniform, medical men wearing caps and badges. Fourteen medical men are attached to the Society, of whom a number are always at the station; there are in addition 60 medical students as temporary assistants, and 322 medical men as honorary members at the disposal of the Society.

All work done by the Society is free, whether inside or outside the station. It is specially ordered that only first-aid, and help only in urgent cases, is to be given. The Society help in cases of accident in the streets, in factories, public buildings, places of amusement, at processions, on railways, etc. At night the society gives first-aid in houses to persons attacked with illness or accidents. For the conveyance of persons suffering from infectious diseases the society possesses some vehicles lined with tin, which are disinfected immediately after the conveyance of each patient. Lately the Society has converted a railway carriage into an ambulance carriage, fitted out with all necessary materials and means of carrying persons.

The medical men hold fixed appointments under the Society, the chief being paid as well as the others. Money is obtained by voluntary contributions, by collections, receipts at festivals, etc. In 1900 the number of occasions on which aid was given was in round numbers 9,000, while 6,400 were removed by the Society's vehicles—total 15,400 cases.

The removal of cases of infectious disease is carried out by the city authorities, who have their own staff and excellent arrangements with vehicles, horses, etc.

Buda-Pesth.

The Volunteer Life-saving Society of Buda-Pesth was founded in 1887 and possesses a building of its own in which a number of senior medical students are always on duty, 12 living in a special part of the building. The ambulances resemble those of Vienna.

The Society is also able to convert ordinary landaus into ambulance carriages. All vehicles are heated in winter and after each time of removal are disinfected, though cases of infectious disease are never supposed to be removed in them. At the station four men are on duty; one of five specially appointed medical men supervising the whole in turn. A principal medical officer is also appointed.

The removal of cases of infectious disease is arranged for by the city authorities by means of their own station and staff.

Graz.

The life-saving branch of the volunteer fire brigade at Graz has since 1889 organised the arrangements for saving life in that town. The members of the life-saving branch, who are at the same time unpaid members of the fire brigade, consist of 30 medical men or medical students in their last terms, and 40 sanitary officers. In the armoury of the fire brigade is a room for dressing wounds and containing bandages, and a dwelling for the medical man on duty. The medical men take it in turns to be always on duty. There are two baggage waggons and five ambulances (life-saving carriages) in which a medical man and three sanitary officers go to the place of accident. First-aid only is rendered in sudden illness or accidents. Other sick persons, especially those suffering from infectious diseases, are removed by the hospital authorities by means of wheeled litters. Clinical treatment does not take place. All help is rendered free.

As in Graz so in many places in Austria-Hungary the fire brigades have organised the arrangements for saving life. The members of the numerous Austrian volunteer fire brigades are trained in first-aid, and even in the smallest places a service is thus made possible.

* *Zur Organisation des Rettungswesen* von Dr. George Meyer in Berlin. Abdruck aus dem *Klinischen Jahrbuch* Jena. Verlag von Gustav Fischer, 1901.

Berlin.

In Berlin there are many arrangements for rendering first aid which have been brought into existence and carried on by various bodies. The police authorities have litters and other ambulance appliances, but little use is made of these.

The town authorities render first aid in the "sanitary stations," in the town hall and other public places, and these stations are open free for the use of any medical man in cases of accident.

The fire brigade is specially connected with the life saving service in Berlin, each fire-station possessing litters and life saving apparatus. If there is danger to human life from any cause whatever, the fire brigade can be summoned by means of a fire call.

City parish doctors are provided for persons suddenly taken ill, and may be called by the police to render aid in such cases. Moreover, everyone is bound by law to hasten to the assistance of the police in cases of accident, assuming that this can be done without danger to oneself.

A number of private associations exist for procuring medical aid in the night, especially in that quarter called "old Berlin," south-west and south. The name and address of a number of medical men ready to render night help on certain days is known in the police stations, chemists' shops, by policemen, night watchmen, and also by notices in houses. For persons without means the association pays; the well-to-do pay at once or through the association. The efficiency of these arrangements has in the last few years, however, somewhat declined.

The sanitary stations, the accident stations, and the Berlin Life Saving Society play now the principal parts in the life-saving service. All three were initiated by private enterprise, and to a certain extent owe their continuance to private assistance. Of these, the first to appear in Berlin were the sanitary stations founded in 1872 in the Brüderstrasse by the Red Cross Union (now so called). In the following years other stations were erected, till in 1886 there were 11, and in 1894, 20. These sanitary stations restrict themselves entirely to giving aid at night, the union having always declined a day service, as they did not wish to enter into competition with the practising physicians.

The Berlin "accident stations" were founded in 1894 and at first four stations were opened, but they now number twenty. The medical service at the stations is so arranged that usually for each station there is a superintending medical man who can call on several assistants to help him. The accident stations have ten vehicles which are kept at nine depôts, mostly breweries, whence the coachman and horses are obtained. The vehicles contain bandages in cases. Every station is on the city telephone and also by direct telephone with the nearest police district office, so that the help of the stations may be obtained through any telephone office. The police bureaus are furnished some with telephones, others with telegraphic communication. Since 1900 the accident stations have been allowed to call themselves "Accident Stations of the Red Cross."

The Berlin Life Saving Society was founded in October, 1897, with the object of securing on a firm basis first-aid in connection with the hospitals, of placing the life-saving system under medical guidance and supervision, and thirdly of inducing all the Berlin medical profession to take part in this work of saving life. The union of the hospitals with first aid was effected by connecting them by telephone with a special central office now in Langenbeckhause, which is twice daily informed of the number of beds vacant in every hospital. This central office is besides telephonically in communication with eight life-saving stations in different parts of the city and with the depôts of the persons undertaking to remove cases who have placed their 27 vehicles at the disposal of the society. The central office is also in direct telephonic communication with the nearest district police office which is also connected with the general police telephone, so that it is possible from every police station and also through every fire-call in the street (fire brigade officials at fires or important accidents are connected by a microphone) to be connected with the central office, and in that way with all the apparatus necessary for first aid. Lately the central office has become an indispensable adjunct to the care of the sick in Berlin.

For those quarters of the city furthest from the hospitals there are now established in eight different places life-saving stations, with a night and day service. In six, the night service is performed by the sanitary stations, while in two, the life-saving society arranges for medical night and day service. A "medical union of the Berlin Life-Saving Society" has been formed to provide for the medical service in these stations. There are 1,100 members, of whom one part serves in the stations. The day service is served by a number of medical men changing one after another; at night one medical man is on duty, and the same is the case in the sanitary stations. A medical man is at the head of each station, and he has to watch over the service to see that it is regularly performed, that the instruments and bandages are ready, and all other arrangements concerning the station. Only first-aid is permitted and the patient is only to be made ready for removal. The conduct of the business is left to the president, the secretary, and two directors chosen from the whole committee.

Stettin.

In Stettin the life-saving system is carried on in a similar manner to that of the Berlin Life Saving Society. In October, 1899, a sanitary station was arranged in the fire brigade building, with medical service. Before then first-aid was rendered by trained fire brigade men. The scientific union of medical men has taken over the maintenance of the service at the station. During the whole night one medical man is at the station. There is a superintendent to manage the service. Every medical man who wishes to share in the service can do so, so that the life-saving service is in the hands of the medical profession.

Breslau.

In Breslau the life-saving service is in the hands of the fire brigade which possesses six fire-stations in the town, of which one, in the inner circle of the town, serves as a centre. The hospitals, police stations, military guard houses etc., are all telephonically connected with this centre. A large number of members of the fire brigade are trained in first-aid and divided amongst the six stations. There is also an accident station erected by a private association. In the town hospital are six hospital waggons of which two are always ready with horses harnessed from the town stables. The above-mentioned institutions as well as the fire-call apparatus are all at the disposal of cases of accident, even in the night. As soon as an accident is notified, the fire brigade starts for the place as if it were a fire and arranges at once the sending of one or more ambulance carriages from the hospital. The service is so arranged that the staff only render the patient capable of being removed, and obtain for him the nearest medical or surgical treatment. There are also 12 accident call stations in different parts of the town which are well fitted up, and in each first-aid can be rendered. Further, the sanitary corps of fire-saving union has 10 places for dressing wounds whence help is sent out especially to fires. A new arrangement of the system is to be introduced by which all the above-mentioned first-aid, etc., is to be under town control and with money from town funds.

Bremen.

In Bremen the fire brigade has in a special manner organised the life-saving system. There are five sanitary stations in connection with the fire stations, in which the service is maintained by fire men trained as "Samaritans." Each station is provided with all necessary material, means of removal (four vehicles), etc. These last are placed in the fire stations, and provided with horses from that source. The service has done good work since 1890. The number of times aid was given has continually increased, and in 1900-1901 reached 2,109. In only 113 of these was a medical man called.

Altona.

In Altona also the fire brigade manages the life-saving service. The patients are conveyed as quickly as possible to a hospital.

Hanover.

The fire brigade is not less useful in Hanover, though it is not concerned directly with life-saving service, but with the removal of the sick and especially cases of infectious disease. At the present time there is a movement on foot for the rearrangement of the system by which life-saving stations with alternating medical service as in Berlin are to be organised. In Linden, near Hanover, an active Samaritan Society has arranged the life-saving system.

Königsberg.

In Königsberg the town fire brigade has undertaken the life-saving affairs and removal of the sick. A carriage ready harnessed always stands at one of the fire stations waiting for a call, which comes by public telegraph; two fire brigade "Samaritans" accompany the vehicle. At the police stations there are cases for wound dressing and bandages. The removal of the other sick is undertaken by the town authorities.

Frankfort-on-the-Main.

There is in Frankfort-on-the-Main a volunteer life-saving society, which has been at work since 1891.

The society has life-saving stations; surgeon dressers give their services; and since last year a new central life-saving station has been erected in the chief fire station. In this central station the service is undertaken by medical men who follow each other in succession during the day, and during the night one medical man is on duty. A medical union provides for the service being maintained. The society gives instruction in first-aid to the officers of the police, of the post office, and other great industries, factories, etc. The service of the life-saving society is now so arranged that immediately after an alarm a carriage with a medical man and two surgeons leaves the station. The society has also cases of life-saving apparatus in various institutions in the town, and it has also placed along the banks of the Main lifebuoys to save drowning persons. In the little waiting rooms of the tramways—by the main guard station—are two cases of bandages and a litter for public use, to be obtained by day by the employees of the tramway company, by night by the officer of the main guard. The society renders first-aid free.

Besides this there is in Frankfort a Samaritan Society, which was founded in 1898, and proceeded from the Samaritan branch of the Frankfort cyclists. The society has now two stations, the second of which was erected in 1900. It consists of a "medical service always ready," in which a number of medical men take part. The superintendent is a surgeon dresser. The usefulness of the stations has increased. They possess a carriage of their own, in which two litters are placed one above the other; there is also room for five persons seated. These two associations are now to be regulated and placed under the control of the town authorities and of the medical profession.

Munich.

The volunteer life-saving association in Munich was founded in 1894. The help given by the society is restricted to actual need and only first-aid is afforded, so that the interests of the medical men should in no way be prejudiced. In the station itself the service is performed by sanitary officers, while for severe illness in private dwellings the medical men of the day from the hospitals are called in, and these are specially warned only to render first-aid and not to continue the treatment. The claims on the society have increased from year to year especially as regards the removal of the sick. They possess three carriages as well as three litters, etc. The horsing of the carriages is only carried out

partially from the town stables as the society have lately bought two horses for themselves. For removal of cases of infectious disease a special wheeled litter is used.

There are also in Munich volunteer sanitary stations of the Red Cross which were founded in the same year, though somewhat earlier than the Volunteer Society.

Cologne.

In Cologne in 1888 a Samaritan Society was founded which erected a number of stations; they are placed at various parts of the city and consist of a chest which contains a litter and a case of bandages. The litter is covered and can be drawn out ready for use. The Samaritan Society has been affiliated lately with the Red Cross.

In 1899 the Cologne Life-saving Society of the Red Cross was founded under medical supervision. The stations are in various hospitals and there are now 13 in Cologne fairly equally distributed over the city. A central office is now in existence. The fire brigade manages the removal of the sick. The society has also undertaken to provide for the Red Cross nurses and attendants in case of war.

Hamburg.

There is one sanitary station in Hamburg which has a night service, and from 11 to 1 a day service during which time a medical man is on duty. A plan has besides been formed in Hamburg to use the hospitals as stations for first-aid, as has been successfully done in Berlin. In addition to the stations maintained by private funds there is an excellent system for the transport of the sick which has been arranged by the police authorities. The removal system is so organised that a sufficient number of vehicles for cases of infectious disease are at 4 depots of a livery stable keeper which can be easily telephoned for from any police station. There is besides a carriage for the removal of several persons injured simultaneously.

Nuremberg.

The volunteer sanitary ambulance train of the Red Cross in Nuremberg has organised a life-saving system, and a sanitary station exists which, situated nearly in the centre of the town, was formerly occupied by volunteer sanitary officials, but lately the service has been maintained by medical men interchanging. The removal of the sick takes place in their own vehicles.

Danzig.

An accident station has been arranged at Legan, in the neighbourhood of Danzig, a room on the ground floor of a factory having been fitted out with all necessary appliances in which persons in the factory meeting with accidents can be treated by those members of the Red Cross who have been trained. The station is under medical control.

Leipzig.

In Leipzig, as in most of Saxony, the life-saving system is arranged in an extraordinarily suitable and satisfactory manner by Samaritan associations. That in Leipzig was founded in June 1882. The association has three sanitary stations, each supervised by a medical man, while the service in the stations is maintained by medical men living in the neighbourhood. The medical men remain at home when on duty, and are called to the station by telephone or messenger; they receive from the association the fee for the aid given according to a specially fixed rate. The medical men of the association, whose staff consist of paid and volunteer members, both being in a military uniform, instruct the police and fire brigade men, officials on the railway and private individuals in first-aid.

In the stations are litters, one carriage on the Vienna model, and belonging to the Samaritan Association, is placed in the principal fire station and can be quickly fetched by telephone message. Horses and coachmen are provided by the fire brigade.

This association has also erected small stations in places where crowds congregate, viz., markets, slaughter-houses, fire and police stations, theatres, railway stations. These are provided with a surgeon's dresser as well as a litter and bandages.

The removal of the sick is in the hands of the local authority; in the city hospital are a number of carriages which on demand immediately go to bring in the patient.

Dresden.

In Dresden the Samaritan Society has organised the life-saving system while the removal of the sick is arranged for by the sanitary police. The Samaritan Society was founded in May, 1896. At first it confined its energy to giving courses of instruction in first aid; later, however, it organised the life-saving arrangements. It now has three sanitary stations, the first of which was opened in 1898, the second was erected on the site of the town relief station. There are in Dresden seven surgical relief places, of which four are attached to hospitals. For removal of persons injured in the streets or taken suddenly ill a carriage ready to start is kept in the chief fire station, and they go as rapidly as a fire engine to a fire. The order can be given by word of mouth or by telephone at a fire station, or at the nearest sanitary police station. Every carriage is accompanied by a fireman and a sanitary police official trained in first-aid. A third carriage is in reserve in the city stables. In every district police station, in the slaughterhouse and the town hall are hand-litters, sedan chair carriers (on duty day and night) acting as bearers.

(iv.) Notes of evidence given before the Sub-Committee.

- (1.) Sir Henry Burdett, K.C.B., Chairman of Council of the Hospitals Association and of the Committee of the Street Ambulance Branch.
- (2.) Mr. Thomas Ryan, Hon. Sec. of the Bischoffsheim Ambulance Service.
- (3.) Dr. Danford Thomas, Coroner.
- (4.) Dr. E. C. Perry, Superintendent of Guy's Hospital.
- (5.) The late Admiral Adeane, formerly Chairman of the Ambulance Committee of the Metropolitan Asylums Board.
- (6.) Dr. R. J. Collie, the Council's Medical Examiner.
- (7.) Police Superintendents.
- (8.) Dr. Nachtel.

(1.) Sir Henry Burdett, K.C.B. (Chairman of Council of the Hospitals Association and of the Committee of the Street Ambulance Branch).

Sir Henry Burdett explained the establishment of the Bischoffsheim Ambulance Service, particulars of which are given in the medical officer's report, and stated his views on the subject of the relative advantages of hand and horsed ambulances. His experience is that it is very doubtful whether a system of horsed ambulances would justify the cost, and he thinks the Paris system is a very extravagant service and not as efficient as the street ambulance service which exists in London at the present time. If it can be shown that there is any useful purpose to be served by the introduction of horsed ambulances or by motor ambulances which are much preferable, the money will be given. It has been offered over and over again.

The great object of an ambulance should be to bring an ambulance litter to an injured person at once, and the less he is moved the better. He said that while he was not opposed to horse or motor ambulances he was strongly of opinion that they did not afford a panacea for street accidents. It would be impossible to cover the whole of London with such an ambulance service, and the provision of an elaborate system on these lines would not be justifiable until it was found where they could be most usefully employed. It would, moreover, be very difficult to get stations. A hand ambulance service can be supplemented by these means, but to substitute horse and motor ambulances for hand litters would be a misfortune.

With regard to the police, Sir Henry Burdett stated that their co-operation is essential. But the police already have as much as they can do, and it is unreasonable to expect them to undertake elaborate arrangements for the removal of injured persons. At the same time the police should be afforded greater facilities for acquiring first-aid knowledge, and they should not be expected as at present to undergo a course of training in their own time, for in practice the majority of police have to find their own time to attend first-aid lectures. The City police co-operate heartily with the system. The service has instructed them in first-aid, and they use the ambulances more than the metropolitan police.

He suggests that some reward should be given to the police, say half-a-crown, for every accident case, removed to a hospital on an ambulance, in which they render assistance.

Sir Henry said that the present ambulance provision is no doubt inadequate, and that the existing voluntary efforts do not cover the whole ground required. The people he represents would be willing to disappear in a moment if they could get the system taken over by the Council. He thinks it is properly part of the work of the Council to organise a proper service for London, and if the Council did nothing more it could afford the existing service sites for other stations.

The Council could also help in inspiring enthusiasm amongst its large staff for first-aid and ambulance work.

Sir Henry Burdett would like to see a trust fund organised by the Council, to which he was sure Mr. Bischoffsheim and other people would contribute.

The Bischoffsheim service has no telephones at its disposal. Telephones might be useful. The stations on *cab ranks* are most useful.

(2.) Mr. Thomas Ryan, Secretary of St. Mary's Hospital, and Hon. Secretary of the Bischoffsheim Ambulance Service.

Mr. Ryan expressed the opinion that the existing provision is not adequate but that it is on the right lines, and that the way to improve it is by developing what we have and not by discarding it in favour of something else. There are at present a large number of hand ambulances distributed over the metropolitan area. In his opinion this system is what the conditions prevailing in London require and not four or six horsed ambulances.

If the object were to make a brave show which would appeal to "the man in the street" then four or six fire-engine-like horsed ambulances are just the thing, but if we want an effective service adapted to the conditions which prevail in London, a large number of light litters to be wheeled by hand is what is required.

Among the reasons for this are—

1. That in at least 75 out of 100 cases a horsed ambulance and surgeon are simply not wanted. The great majority of accidents, etc., are happily comparatively slight, and first-aid and a well constructed hand ambulance are the *desiderata*.

2. That the 10,000 or 12,000 accidents that happen every year in London do not occur regularly, about one per hour, throughout the day and night. No doubt if they did it would be an ideal condition for 4 horsed ambulances to cope with. But no, these accidents are intermittent and erratic. On a foggy day for instance, or when frost succeeds to a light rain, they occur in scores at the same time all over London. It is certain that 4 or 6 or even 10 horsed ambulances are not calculated to successfully deal with a situation such as that.

It is therefore tolerably clear that whatever other qualities the transport conveyances possess, they must be numerous.

One other point he laid stress upon, that the police are, and must be, the basis of any ambulance system in London. It is the policeman who has to take the first step—often the making or marring of the whole business—viz., to decide to move or not to move the injured person, and, if he must be moved, to do it properly.

In most cases he must be moved a few yards out of the way of traffic, and the policeman as a rule has to do it. Then comes the question of transporting him to a hospital. Shall the patient be at once "got into" a hansom or four-wheeled cab, or, if a wheeled stretcher be not at hand, be allowed to lie still till one is available. Momentous question for the patient!

At the root of both these points is "First-Aid" training. Without training the policeman does not understand that, in many cases, to let the patient lie still until proper means of transport are available is the best thing that can be done; without training he cannot splint the broken limb, or stop bleeding, which in the majority of cases is an adequate preliminary treatment. Yet trained or untrained the policeman as a rule is the person who has in practice to deal with the problem.

With training, we have present constantly in the streets of London somewhere about 2,500 men capable of rendering efficient preliminary treatment, in the great majority of cases, and in every case of avoiding faults of commission which are at present the source of the most mischief, and of safely conveying the victims of street accidents to hospital; moreover, such a corps can be provided in no other way.

But even if an effective corps could otherwise be provided it is important to note that it would not fully meet the needs of the case. In street accidents the policeman is the first on the spot. The sufferer has to be moved out of the way of traffic; the policeman has to do it. In short, the policeman in London is an indispensable part of an ambulance service, and he must be properly trained and kept efficient; at present he often is not. What the proportion of untrained police is he could not say, but it is considerable.

With regard to the "Bischoffsheim" service which was established in 1889, it was based on the fact that the police were the *personnel* of the street service, and its object was to provide them with proper transport *materiel*. The service has at present 55 ambulances distributed over the metropolis, on which about 2,000 cases are transported every year. Its establishment cost about £1,500, and its annual maintenance about £300. Nearly all the first outlay and the whole of the annual maintenance was provided by one person, Mr. H. L. Bischoffsheim, who is not only prepared to continue to provide that annual sum but to increase it if necessary for the development of the service. It should not be understood that Mr. Bischoffsheim would object to the service being supplemented by a small number of horsed or motor ambulances, as it might well be that such an addition would be useful; but he was satisfied after an extensive experience that the general characteristic of the service must be a large number of light hand ambulances, supplemented, it may be, by a few of the horsed or motor type.

The "Bischoffsheim" service originated from a paper on "The conveyance of injured persons to the metropolitan hospitals," which he (Mr. Ryan) read before the Hospitals Association in 1889, and its work has been carried on under his personal supervision from that date to the present time. The cost of a street-station was from £20 to £25.

(3.) Dr. Danford Thomas, Coroner.

Dr. Danford Thomas said that practically London had no ambulance service for accidents and other cases, and that much important time is lost. The present system with regard to infectious cases is a very excellent one.

He thinks it would be publicly recognised as a proper and useful thing to originate the organisation of a system in London. The police at present render very excellent service; they are on the spot, and as a rule exercise discretion. The police should have the use of any horsed ambulances that might be provided. There are plenty of hand appliances, but what is wanted is a horsed ambulance. The great point is the need of some more rapid means of conveyance. Cabs are not appropriate, and are used no doubt because they are handy, but great injury may be done in cases in which persons with, say a fractured thigh, are taken to the hospitals in cabs. Organisation and horsed ambulances are undoubtedly wanted.

It would be better in many cases to wait a quarter of an hour to get a proper ambulance than to use a cab at once, and it is wiser to let a patient lie still and wait until some suitable vehicle comes along.

In New York, such a service as he indicated is provided, and horsed ambulance, doctor and nurse, are ready at the hospital to go to any spot on receipt of a telephonic or other communication.

(4.) Dr. E. C. Perry, Superintendent of Guy's Hospital.

Dr. Perry said that the present ambulance services are most inadequate, that much suffering is caused by the way in which accident cases are brought to the hospitals, and that there is considerable risk in the use of cabs for the purpose.

He is of opinion that a proper system must be managed by a central body, and that the London County Council is the most suitable body to undertake the work. The hospitals had no funds for the purpose. Dr. Perry said he sincerely hoped that the Council would lose no time in dealing with the matter, as it was very painful to watch the arrival of accidents at hospitals under the present system. With regard to such a system a considerable staff and organisation would be required, and both hand stretchers and horsed ambulances should be provided, the latter clearly being best and likely to be frequently used. The number of cases brought to hospitals day by day varies little, and a large number of accidents come from great distances.

He did not think it necessary that a doctor should accompany the ambulance, and with regard to the treatment to be rendered to a sufferer on the spot the safest way is to take the case in a recumbent position as quickly as possible to the hospital. He thinks the police show an intelligent interest in the work.

Although hospitals could not contribute towards the expense of organising an ambulance system Dr. Perry believed that they would be glad to give facilities in the way of providing stations where practicable.

(5.) The late **Admiral Adeane**, formerly chairman of the Ambulance Committee of the Metropolitan Asylums Board.

Admiral Adeane explained the system of the Metropolitan Asylums Board, for the removal to the Board's hospitals of persons suffering from infectious disease. The system is very complete, there being stations in telephonic communication with the central office and cases are removed with the least possible delay—100 a day. There are about 100 horsed ambulances. Speed is not considered of such importance as the avoidance of accidents. In reply to a suggestion that there would be considerable objection to an infectious and non-infectious system being organised by the same authority, Admiral Adeane expressed the opinion that there would be no difficulty in having an entirely separate organisation and that as a matter of fact the Board had a non-infectious system for removing imbecile children. He thought that if the Board were asked to provide an ambulance system for accidents they would do it and without difficulty. He had formed no opinion as to the need for such a system.

(6.) **Dr. R. J. Collie**, Medical Examiner to the Council.

At the present time there is, considering the size of London, practically no method available in cases of accident. Dr. Collie mentioned a case of a painter who fell down opposite his house and said that he sent to one of the London hospitals asking for assistance and received a reply to the effect they would be very pleased to see the case, if brought to them, but could not send for the man.

Dr. Collie also referred to a case in which a man with a broken leg had been taken away in a four-wheeled cab, and was ill for six months in consequence.

The present system is wholly inadequate. Few people have any idea of the number of accidents which occur in the streets of London in the course of a year. With the growth of the metropolis the number of accidents is rapidly increasing, in 1891 and 1892 they were 4,756 and 4,806 respectively. In 1900 and 1901 they were 8,010 and 7,995 respectively. For removing accident cases there ought to be a specially organised arrangement worked by men accustomed to the work.

Dr. Collie stated that he would be very sorry, should he meet with an accident in the street, to be moved on a police ambulance. Often much time is lost before the ambulance is at the scene of the accident. An ambulance used for inebriates is not suitable for accident cases.

It is left to the police to afford the first-aid, and one of the most important parts of the work is the arrangement made for lifting a patient. First-aid knowledge is very useful but the police are not sufficiently trained therein, one short course of instruction consisting of but five lectures being in the case of some of the men considered sufficient.

Dr. Collie thought that improvement would be found in providing an organisation which though distinct, should be worked in conjunction with the fire brigade. Wherever there is a fire-station there should be an ambulance station or one for every two or three. Horsed or motor ambulances urgently called for. Time is of course important.

The Asylums Board have a very efficient system for removing cases of infection.

NOTE.—*Dr. Collie has been good enough to examine and furnish descriptions of, the horsed ambulance services of Manchester and Liverpool. These descriptions are printed below as an appendix to the notes of evidence (see pp. 31-32).*

(7.) **Police Superintendents.**

(a) *Superintendent Cole, E Division*—In the majority of serious cases patients are taken to the hospital in cabs, but in cases where the injury is slight the persons walk. There is generally a cab on the spot, but if the case is a very serious one the police send to the police station for the ambulance.

There are two litters at Bow-street, one at Gray's-inn-road and one at Hunter-street. Most people prefer to be conveyed in cabs rather than in an ambulance.

Constables are supplied with a list of all hospitals in their own and adjoining districts, and also a list of all the places at which ambulances are to be found.

In the E division during the six months ended February, 1902, the police ambulance was used 110 times, the Bischoffsheim ambulances 56 times, and cabs 120 times. Most of the police are instructed in first aid.

The police always send for medical aid or take the case to the hospital. Ambulances would be sent for by a second constable, the message being conveyed by hand. If a second constable was not available, a private person would take the message. The point is that an injured person must be moved. A policeman would ask private individuals to assist him in moving the injured person out of the street or roadway.

The police have conveyed cases of injured assistants in factories, but this would not occur very often as firms have their own arrangements.

In the outlying districts there are not the same conveniences as in the central divisions. There are 10 hospitals in the E division and six ambulance stations. Cabs are used because they are quicker. Cases of broken legs would not be put in a cab. In the inner districts the majority of accidents are dealt with by the police.

(b.) *Superintendent Mulvany, H Division*—In his district cabs are not so plentiful.

During the six months ended February, 1902, the police ambulance was used 84 times, the Bischoffsheim ambulances 14 times, and cabs 24 times.

Vans are responsible for most of the accidents, and in many cases the van would take the injured person to the hospital.

There are in his district two Bischoffsheim ambulances and four police ambulances. Police ambulances are cleaned by the person detailed for the work of cleaning the station, etc.

Telephones are not used in his district.

Mr. Mulvany said that he had never known the want of an ambulance.

(8.) **Dr. Nachtel.**

Dr. Nachtel's views are embodied in the description of the Paris service, which he was good enough to place before the sub-committee, and which is printed *in extenso* in the medical officer's report (pp. 19-20).

APPENDIX I.

Notes on the horsed ambulance services of Manchester, Liverpool, Dublin, and Belfast.

(a) Manchester.

(Population—Census, 1901—543,872).—The whole of the ambulance arrangements are provided for by the police, and are under the supervision of the Watch Committee. Until a year ago there was no properly established horsed ambulance service in the town.

There is but one ambulance station, which is situated at Goulden-street, a busy centre of the city, and adjoins the Goulden-street police station. The ambulance station accommodates four ambulance waggons, six horses, five police constables and the inspector. The inspector and constables who act as drivers, live on the premises.

As the number of applications for assistance is rapidly increasing, the Watch Committee are now building two additional ambulance stations, and the question of providing an ambulance for each division is under consideration.

Everything is kept in a state of complete readiness for an urgent call, the horse stands ready harnessed, and as a rule, the waggon is on its way to the accident in less than a minute from the receipt of a call.

Method of summoning the ambulance.

Messages are received by—

1. The Police telephone.
2. The National telephone.
3. By messenger direct to the station.

The majority of calls are sent through the police telephone, but if an accident occurs at some distance from a police station the police constable avails himself of the nearest public (National) telephone. Each police division has a list of the names of the public who are willing to allow the use of their private telephones in case of accident. At night the only means of communication with the ambulance station is by the police telephones (20 stations), and any of the National telephone instruments (such as electric light stations) as may be available during the night.

The ambulance waggon is at once despatched to any address whether summoned by the police or the public. The number of false alarms is very small.

The six men, one inspector and four drivers have all undergone instruction in first-aid to the injured.

The rule seems to be that the driver only, accompanies the van to an ordinary street accident; but to private cases another man always accompanies the driver.

It would appear that on arrival at an accident one of the public is left to look after the horse while the driver attends to the injured man, assisted by a police constable who may be in charge of the case at the scene of the accident.

If it is reported that a woman has been injured, the matron of the police station accompanies the van to the scene of accident. If on arrival only, it is found that a woman has been injured, one of the public, preferably a woman, is invited to accompany the constable and return with the injured woman. The patient is then conveyed to the nearest hospital.

The ambulance drives at a rapid pace, the driver warning the public of its approach by an ordinary police whistle. Although this system has only been in use for a little over a year, the public are already getting to understand, and readily make room for it, even in crowded thoroughfares. The police constable on point duty always assist in facilitating its rapid progress. It is suggested that each van should in future carry a small flag with a Geneva cross on it.

Besides ordinary street accidents, occasionally lunatics are removed from the street, or from the police cells to the police court, await the decision of the magistrate, and convey the patient to the asylum or the workhouse as ordered.

Use of the ambulance.

The City ambulances are used for the removal of private patients at a fee varying from three shillings and sixpence to five shillings, within the City boundary.

Number of calls.

The average number of calls per week for the whole City varies from 25 to 30, 4 or 5 of which are private, the maximum for one day being 12 calls and that for one week was 36.

On the day of my visit I found that there had been the following calls—4.13 a.m., confinement in the street—telephone message from a doctor—patient taken home. 8.28 a.m., personal call at the ambulance station by one of the public—patient taken to hospital—died in ambulance on the way. 11.44 a.m., summoned by telephone to a man suffering from *delirium tremens*—taken to hospital.

The books show that the number of calls from the 18th of July to the 18th of August inclusive was 199 cases, 50 of which were private. The amount paid by the public for the conveyance of private cases during that period was £18 10s. 6d. A careful entry is made of the exact hour at which the message is received, the time when the ambulance left, the nature of the injury, etc. At the time of my visit at my request the horse was harnessed and the van on its way to a supposed accident within three quarters of a minute.

The van.

Two of the vans used are built by Wilson and Stockall, Bury, Lancashire. They are of an excellent pattern, fitted with rubber tyres, good springs, are strong, light and roomy. They cost £135 each.

Each van accommodates two stretchers, which are placed above each other. There are two seats, a small one for the attendant, and a larger one where two patients may sit in an emergency. There is a small shelf for splints, tourniquet, etc., and a drawer in which are kept hot water bottles and other appliances.

The whole is systematically washed with Izal fluid.

(b) **Liverpool.**

(*Population—Census 1901, 684,947*).—At Liverpool the horse ambulance system is under the direct control of the police. Horse ambulances are stationed at four of the principal hospitals, and one at an outlying suburb at a police station. In all cases the police provide the ambulance waggons, the horses and harness, and a driver, who is a police constable. The hospitals provide the necessary coach-house and stabling, and a surgeon from the hospital, who invariably accompanies the ambulance when summoned.

In the case of the ambulance stationed at the outlying suburb, there being no hospital, the ambulance waggon is kept at the chief police station of the district. No surgeon in this case accompanies it, but a constable qualified to render first aid accompanies the waggon.

The ambulance station at the outlying suburb is available at any time day or night.

The four waggons stationed at the different hospitals in the city are only available during the day. One of these is each evening removed to the central fire station and is therefore, with the exception of the outlying one, the only one available for night duty, and no surgeon accompanies it at night or on Sundays.

All cases are taken to the hospital of the district in which they are found. The ambulances are not used to convey medical cases to or from the hospitals except in exceptional cases where the house surgeon is of opinion that the patient can only be moved safely in an ambulance, that he lives near, and is not in a position to pay for a private ambulance.

If from any accident an ambulance waggon at any of the hospitals is disabled, it is replaced by one from headquarters. Frequent examinations of the ambulances are made by the superintendent.

The fire brigade as well as the horse ambulance service in Liverpool is worked by the police, and the horses are used indiscriminately for either.

Method of calling the ambulance.

There are four methods by which the police or public may summon an ambulance waggon.

1st.—By direct application either to the hospitals, to the police, or to the fire-stations.

2nd.—By the public (National) telephone. A number of private telephone subscribers with the consent of the Postmaster-General have given permission for police officers to use their telephones in emergencies.

3rd.—There is a complete private police telephone system, which has instruments at all the police and fire stations and hospitals, all of which are in direct communication night and day with the central police office.

4th.—An elaborate system of signal-boxes. There are in all 264 signal-boxes distributed at regular intervals in the busiest parts of the town. These boxes are about two feet by one foot by six inches, are of iron, and painted red. They are affixed in prominent positions to walls, railings, etc. They are arranged in circuits of about ten boxes each. The circuits within a mile of the central police station communicate directly with the central office, but the outlying circuits are grouped and communicate with four sub-stations which receive and re-transmit the message direct to the central office. The signal-box is opened only by a key with which each constable is provided. A limited number of keys is also supplied to the public.

When the door of the signal box is opened six levers and a small telephone instrument are to be seen.

The first is for an ordinary fire.

The second for a serious fire.

The third for a patrol waggon (used for carrying a resisting prisoner).

The fourth for a patrol waggon (used for bringing extra police in the case of a disturbance).

The fifth is for the horse ambulance.

The sixth signals that the telephone is about to be used.

When a lever is pulled it automatically prints at the office (by a system similar to the Wheatstone telegraph) symbols giving the time, the number of the box and the signal. These messages may be supplemented by using the telephone, thereby giving more precise directions where for instance the ambulance waggon is to be sent.

When the signal for the ambulance is received at the central police station, the locality in which the accident has occurred is noted, and the nearest hospital to the scene of the accident is directly communicated with, and the ambulance at once dispatched. This is done through the police (not the National) telephone.

The public may of course use the National telephone and communicate directly with the hospital, and in the case of an accident order the ambulance straight from the hospital.

The supply to the public of keys for the signal boxes is limited by charging an annual fee of two shillings and sixpence for the key and requiring a deposit of one guinea from each holder of a key.

The improper use of the keys by the public is prevented by an ingenious arrangement whereby the key, when once used to open the door, cannot be withdrawn without use of the master key (which is only in possession of the constables). Each key is numbered, malicious use is thus at once detected.

(c) **Dublin.**

(*Population—Census 1901, 290,638*).—In Dublin there is an active ambulance service worked as part of the Fire Brigade, the men being instructed in first-aid by the medical officer. 868 cases were dealt with last year, including all kinds of injuries and sudden illnesses occurring in the streets.

Calls are most numerous on Saturdays and fewest on Sundays. A new district station in Dorset-street is being established, and this year some 110 calls in each month have been received.

(d) Belfast.

(Extract from report of Belfast Fire Brigade, year ending June, 1901.)

(Population—Census 1901, 349,180).—The work in connection with this branch of the service is highly appreciated: 1,867 calls were received (showing a decrease of 8 from last year), occupying 918 hours 47 minutes (being a decrease of 72 hours 25 minutes from last year), showing an average of 29½ minutes per journey from the receipt of the call until the carriage returned to its station. The distance traversed was 4,487½ miles, or an average of 2½ miles per single journey.

Carriages are worked from the headquarters and Whitla-street-street stations.

The number of calls received between the hours of 6 a.m. and 6 p.m. was 1,063, and between the hours of 6 p.m. and 6 a.m. was 804.

On the 21st July special services were rendered with the ambulance waggons on the occasion of the lamentable collision between two passenger steamers in Belfast Lough, for which the superintendent received many expressions of gratitude from friends of the injured persons and from the owners of the vessels, and the greatest compliment on the manner in which the cases were dealt with was received by way of the following resolution passed at a meeting of the medical and surgical staff of the Royal Hospital, to which institution the cases were removed—

Resolved—"That the staff express their appreciation of the skill and care with which the members of the Belfast Fire Brigade attended to the sufferers from the recent steamboat collision in Belfast Lough."

APPENDIX II.

The following return has been prepared by the clerk of the Council from information supplied by the hospital authorities and shows the kind of conveyance actually used during a period of four weeks in removing casualty cases to the hospitals—

Hospital.	Walked in.	Cabs and carts.	Ambulance.	Otherwise.	Total.
Poplar	46	9	9	12	76
St. Bartholomew's	123	141	80	5	349
Royal Free	—	33	16	—	49
Guy's	—	207	93	4	304
Great Northern Central	—	35	11	—	46
London	812	118	35	1	966
King's College	14	17	11	—	42
Westminster	7	8	4	—	19
St. Thomas's	—	40	30	28*	98
Charing Cross	4	34	13	—	51
Total	1,006	642	302	50	2,000

* Including waggons, carts, trams, walking, etc.

The returns have been sent in in various forms, and in the foregoing table it has not been possible to show interesting details included in some of the returns. The three largest returns are therefore set out in full as received from the hospitals. They are as follows—

St. Bartholomew's hospital.

By City police ambulance	52
„ Metropolitan police ambulance	9
„ Hospitals' association (Bischoffsheim) ambulance	10
„ St. John ambulance	4
„ London ambulance service	1
„ Railway ambulance	3
„ G.W.Ry stretcher... ..	1
„ Fire brigade carriage	1
„ Carried by men	9
„ Omnibus	2
„ Barrow	2
„ Van	41
„ Cab	91
„ Walked	123
	349

Guy's hospital.

<i>Cases of Accident.</i>				<i>Cases of Illness.</i>			
Cabs	66	Cabs	66				
Vans and carts	62	St. John Ambulance	4				
Police ambulances	55	Hospitals' Association (Bischoffsheim) Ambulance	4				
Barrows	10	Police ambulance... ..	30				
Perambulators	2	Barrow	1				
Bath chairs	2	Vans	2				
	197		107				

London Hospital.

	Accidents.		Sudden illness.		Fits.		Totals.
	†	§	†	§	†	§	
Police ambulance... ..	19	2	5	—	1	—	27
St. John ambulance	3	1	—	—	1	—	5
Railway ambulance	3	—	—	—	—	—	3
Cabs	36	2	2	3	2	—	45
Shutters	1	—	—	—	—	—	1
Other vehicles	67	2	2	—	2	—	73
Walking	749	63	—	—	—	—	812
Totals	878	70	9	3	6	—	966

† 1 mile and under.

§ Over 1 mile.



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