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HORSE AMBULANCES

AMONG the many remarkable movements of the present generation for the relief of suffering humanity, none are more worthy of support and encouragement than those having for their object the wider dissemination of the means whereby temporary help may be given in the case of illness or accident, and the better and quicker transportation of the patient.

There can be no doubt that the lessons in giving first aid imparted by skilled instructors to the police, the army, and to numerous other classes and individuals throughout the country, have resulted in numberless instances in the prevention of a vast amount of needless suffering, that would otherwise have ensued as the result of unskilful handling of the patient in the first instance.

But it may be doubted whether that part of the ambulance system that deals with the actual transportation of the sufferer from the scene of accident to the hospital or home has advanced as rapidly towards perfection.

The ambulance in England is still, as a rule, in the nature of a hand stretcher.

The more rapid system of an ambulance wagon drawn by either one or two horses is seldom, if ever, employed, as it is in New York, where the system originated, in other cities of the United States, in Vienna, and to a limited extent in Paris, where it was started at the time of the war between France and Germany.

The idea of instituting horse ambulances, that should be summoned and sent out in cases of illness or accident with the same speed and regularity with which fire engines are called and dispatched in the case of fire, originated in the year 1868 with Dr. E. B. Dalton, at that time the superintendent of the New York Hospital. Owing to a change in the disposition of that institution's property the suggestion was not acted upon at the time, but in the following year the Department of Public Charities and Correction approved of Dr. Dalton's proposals and the code of rules he had drawn up, and in consequence an ambulance service was adopted at Bellevue, the Municipal or Free Hospital of New York.

Nineteenth Cent. Lond.,
1896, XL.

From that time forward the system has proved so useful and beneficial that it has gradually extended to all or nearly all the other hospitals in New York, as well as to many other cities in the United States, and has become an integral part of the hospital work, and numberless lives are saved by its agency, and by the speed with which help is brought to the sick and injured.

The ambulance service of New York is conducted by means of vehicles kept continually ready at the different hospitals, the stables being either in the grounds of the institution or at a very short distance.

The system employed varies in slight details in the different hospitals in New York, but, speaking generally, on a telephonic or telegraphic call for an ambulance being received at one of the hospitals, it is automatically and simultaneously transmitted to the room of the surgeon on duty, and to the driver and the gatekeeper.

The horses are immediately attached to the ambulance, improved methods of swing or suspended harness being employed—as in the case of the fire departments—all the parts adjusting themselves properly when pulled down on the horse, and being fastened by a few snaps, so as to reduce the time occupied to a minimum. The driver springs to his seat, the gates are thrown open, and the ambulance starts out, picking up on the way the surgeon, who has received a slip of paper on which is written the source of the call, and the time and the place where the accident has occurred, which last information he calls out to the driver.

The whole process from reception of the call to the start requires on an average about one minute.

The instructions to the driver are that 'in responding to a call the ambulance should always be driven at a rapid, but never at a dangerous rate. In returning, the rate should always be moderate, except when with cases which must be brought to the hospital without delay.'

By Act of Legislature ambulances have the right of way over all vehicles excepting those of the Post Office and the Fire Departments, and each ambulance is provided with a gong, which the driver sounds when necessary, to warn other vehicles to keep out of the way, and not to obstruct its transit.

On arrival at the scene of the accident the surgeon applies such treatment as is immediately advisable, and with the help of the driver lifts the patient into the ambulance bed, which by an ingenious arrangement is run out from, but remains attached to, the wagon, and the bed is then carefully run back into its place. Should the patient express a desire to be taken to his own home, instead of to the hospital, his wish is complied with, provided he lives within the city limits, unless the surgeon, with whom the decision rests, sees any reason to the contrary.

Should the patient be conveyed to the hospital, he is on arrival handed over to the care of the house physician, the ambulance surgeon making his report at the same time on the case. The ambulances, it should be added, are kept ready to start out at any hour of the day or night.

Such is the general system observed by the hospitals in sending out their ambulances, and it is to be specially noted that from first to last the whole service is entirely gratuitous, though naturally many of the patients, on leaving the hospital, present a donation towards its funds.

In reviewing next the means whereby the ambulances are maintained, distributed, and regulated, it may be best to give a brief description of the American hospital system generally, differing as it does in many respects from our own.

In the United States the chief cities provide, through their Department of Charities or other similar body, a free hospital, supported by yearly taxation, at which all citizens can obtain indoor or outdoor treatment. These hospitals, however, do not answer to the Poor-law infirmaries of Great Britain, but correspond more to such hospitals as Guy's, St. Thomas's, St. George's, the London, and other general hospitals in the English metropolis.

There are also in New York private or partially self-supporting hospitals, maintained by private charity or by endowments, at which the rule is to charge a weekly or daily rate graduated according to the room that is occupied, or, in the case of a bed in the general ward, by the circumstances of the patient. Many of these hospitals, however, admit a great number of free patients, but this does not alter their private character.

It may be mentioned in passing that the use of this free or municipal hospital is not looked upon in the United States as having the pauperising effect that admission to the English workhouse infirmary has; in a similar manner, in that country education is free—even to the higher grades—and the parents of children of all classes avail themselves of the advantage in their children's early education, a procedure that would probably provoke unfavourable criticism in England.

The hospital system in New York may be divided into three classes :

Municipal or free hospitals, supported and carried on by the city from money raised by yearly taxation; and private and public hospitals, supported by individual contributions or by income from endowments. The public hospitals are such private ones as have established public ambulances, and they are public only in so far as regards their ambulance service.

As has been mentioned before, the municipal or free hospital of New York is Bellevue, where the first ambulance service was adopted

in December 1869. In that month there were seventy-four calls; in the next year the number was 1,466.

The following table will show the increase from this time forward, not only in Bellevue, but in the other hospitals which have adopted the system, and the year of their so doing:—

Name of Hospital	Year when System adopted					
	1870	1877	1878	1879	1881	1892
	Number of Cases in each Year					
Bellevue	1,466	1,217	1,606	1,888	2,282	4,858
House of Relief	—	1,155	1,253	1,321	2,293	3,216
New York	—	—	651	585	1,154	1,520
Roosevelt	—	—	273	291	352	1,675
St. Vincent	—	—	—	823	1,387	2,066
Presbyterian	—	—	—	—	387	1,730

In 1893 the total number of cases was upwards of 20,000.

The ambulance service of New York City consists of the following number of vehicles:—

Bellevue (the Municipal Hospital)	10
Government }	2
Harlem } Dependencies of Bellevue Hospital ¹	1
Fordham }	2
New York	2
House of Relief (a branch of the New York Hospital)	2
Roosevelt	3
The Presbyterian	3
St. Vincent	2
Manhattan	2
Flower	2
Total number of Ambulances	31

With the exception of those of the municipal hospitals, these vehicles are under the management of, and maintained by, the respective hospitals, without any assistance from the municipal authorities.

The service is controlled by three separate departments:—the police, the health, and the commissioners of public charities and corrections.

The police commissioners only exercise control in so far as the allotment of an area is concerned, from which individual hospitals receive casualty cases.

The commissioners of public charities and corrections maintain and have special charge of and control over the municipal and public hospitals, but the private institutions are independent of their orders.

¹ These dependencies of Bellevue Hospital are emergency hospitals, situated in the remote parts of the city, and are only intended to accommodate accident and other cases until they can be transferred to Bellevue itself.

But by arrangement between the hospitals, both public and private, and the commissioners and the police, all sick and injured persons may be taken to whichever hospital may be the nearest, the object being to insure the quickest possible medical or surgical treatment.

The private hospitals enter into such an agreement because of the experience and practice it affords to the physicians and surgeons connected with them; indeed, so much has the ambulance service become a part of the New York hospital system that there is a great desire to secure an allotment of an area, so as to ensure a share of the accident and emergency cases that occur.

No hospital, in fact, in New York could now be carried on without ambulances; a hospital without an ambulance would be without patients. The ambulance surgeons are not students merely, but are sub-juniors of the hospital house-staff, holding the degree of M.D., and they give their services gratuitously on account of the experience they gain.

As regards cases of contagious disease, the Health Department takes exclusive charge of them, and arrangements are made that prevent any danger of infection being communicated to others.

To ensure no time being lost in summoning an ambulance when required, the city of New York is divided into police precincts, each having its station house or headquarters, while there is one general headquarters for the entire Police Department. These several headquarters are in communication with the general headquarters by telephone or telegraph, and it again is in communication with the several hospitals maintaining an ambulance service. In the case of a street accident, therefore, the policeman on duty where it occurs communicates by telegraph, telephone, or other expeditious way, with his headquarters, they pass the message on to the central headquarters, and the message is transmitted from there to the nearest hospital provided with ambulances.

Though this is the regulation way, other methods of summoning an ambulance are naturally made use of—when, for instance, the accident occurs near a hospital, and it is summoned direct by a spectator or by a policeman by word of mouth, or a call is sent over the general public telephone or telegraph.

The Fire Department of New York has also introduced ambulance calls into its code of signals, and these may be sent out from all the signal-boxes throughout the city.

The ambulance used in New York is of the Abbot-Downing type, and has a covered arched roof, room for the bed before mentioned, on which the patient can lie at full length, and for the surgeon and the various instruments and appliances he carries with him.

The cost in New York is \$550, or, allowing for the difference in

the purchasing power of money in England and in America, about 85*l.* to 90*l.* in English money.

The cost of maintaining an ambulance in New York is about \$920 to \$1,000 (190*l.* to 208*l.*), which may be considered equal to about 150*l.* in England, this estimate including the wages and board of the driver, forage for the horse, and keeping the ambulance in repair.

The excellent example set by New York in regard to its ambulance service has been copied in its general principles by most of the other big towns in the United States, though the systems pursued differ in various details. For instance, in Philadelphia, Norwich (Connecticut), and Chicago, the police have the chief charge of the service, though in Philadelphia other ambulances are maintained by private hospitals and institutions.

In St. Louis one ambulance is kept by the police and one at the Railway Hospital, while others are maintained by their Department of Health.

At Pittsburgh twelve patrol wagons are used by the police for ambulance purposes, while at the same time all the hospitals in that city have ambulances ready.

In Boston five of the general hospitals have six ambulances in use altogether, the municipal hospitals have three, while the Police Department has seven.

In New Orleans the service is under the direction of the administrators of their Charity Hospital, which is supported in a manner that in one of its details would scarcely be recognised in this country.

It is maintained by 'license fees paid by auctioneers, and on account of public entertainments, such as theatres, balls, shows, &c., an annual contribution of \$40,000 from the Louisiana State Lottery Company, and voluntary contributions.'

The custom there is for two surgeons, instead of one, to go out with the ambulance, and the hospital authorities exercise their discretion as to whether to answer calls or not—a practice that would scarcely seem advisable, as liable in a great measure to destroy the main object of the whole ambulance system, which is to reach the sick or injured in the shortest possible space of time. False calls will occur, as the Fire Brigade in London and elsewhere know only too well; but if time were to be lost while an investigation is made into the genuineness of the call, what terrible disasters would result!

In other respects the service in New Orleans seems to have been brought to a great state of perfection.

A report says: 'By one electric action a gong is sounded in the ambulance station, and in the bedroom 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 wagon, 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.'

This time is certainly remarkable, and would seem to deserve to rank as a record; but those who have seen the Fire Patrol turn out in Chicago will remember that with them still more extraordinary celerity is attained. The horses having been trained to spring to their places of their own accord on the striking of the alarm gong by electric mechanism, their harness, suspended above them, drops down on their backs, and is attached with one or two snaps; the gates fly open, and, should the call be at night, the clothes are pulled off the beds on which the firemen sleep on the floor above; the beds themselves are at the same time tilted over to one side, and the firemen, who sleep ready dressed, with the exception of their boots, which are ready on the patrol wagon, find themselves deposited on the floor at the entrance to a sloping wooden chute so arranged that, gliding down it, they alight on the wagon, which immediately starts out.

The average time taken from the striking of the gong to the start is five seconds.

The operation of gliding down the chute, simple as it would seem, requires some confidence, as an English visitor to Chicago found to his cost when he attempted to perform the feat. Losing confidence when halfway down, he endeavoured to stop his wild career, alighting instead with a severe fall and a badly damaged leg.

In New Orleans, those who can afford to do so are expected to pay for treatment in the Charity Hospital or for being transported to their homes by its ambulance.

Turning now to the Continent, Vienna is the city which appears to have advanced most in the matter of ambulance service. But, owing probably to the military character of the nation, the terrible floods to which the city is exposed, and to the great disasters that have from time to time occurred there, the object would appear to be to combine a system of providing relief against famine and exposure, together with the ordinary ambulance in case of sickness or accident.

The Volunteer Humane Society of Vienna was established after the burning of the Ring Theatre in 1881. It is supported entirely by voluntary contributions, receiving no assistance from the State or the municipality, and its services to the public are given gratuitously. It has at its disposal the services of a volunteer fire brigade, in case of fire, numbering nearly 400 men, with all necessary apparatus; of 200 trained watermen, with boats and the newest appliances for saving life; and of 221 doctors and 100 volunteer assistants (all medically educated).

The society owns 20 ambulance wagons for the transport of the sick and wounded, besides other vehicles; 25 doctors, whose residences

are distinguished by coloured lamps, give their services gratuitously to the society for night work.

Two ambulances by day and one by night, with the horses ready harnessed, are kept in readiness at the central station.

In addition to the ordinary ambulances, the society owns vehicles called 'kitchen ambulances,' fitted with all the necessary apparatus for forming soup kitchens, which they send out, with cooks in attendance, in time of floods and other disasters.

In Paris, the 'Ambulances Urbaines,' a private philanthropic enterprise, was started in the year 1888. The society sends out a special ambulance carriage on being communicated with at the Hospital St. Louis, their headquarters.

One of their ambulances is always kept ready harnessed, provided, as in the case of the New York service, with a stretcher, and containing the medical appliances necessary for first treatment, a doctor accompanying the vehicle, who conveys the injured person to the hospital or to his home.

Numberless lives have been saved, not only in New York, but in the many other cities that have followed the admirable example it first set, by the speed with which the ambulances reach the sick and injured, bringing help that literally wrests back the sufferer from the jaws of death, as the last flickering spark of life is leaving the body.

As, in the case of fire, the first few seconds or minutes are proverbially the most critical, so is it often in the case of accident or illness, and many lives are lost by injuries received in the streets of London and the other great cities of England, owing to the delay in reaching the scene of accident with a hand stretcher, that might be saved were the New York system in universal use.

And if a conveyance is employed in any English town in the case of accident, what is it? Generally a four-wheeled cab or suchlike unsuitable vehicle—perhaps to convey the patient for a distance of several miles to the nearest hospital, when suffering from broken limbs, the cramped position necessary in such a conveyance causing the sufferer excruciating agony.

The official annual reports issued by the Commissioner of Police of London dispel an illusion sometimes entertained that practically no accidents occur there.

The excellent manner in which the traffic is regulated in London, to the admiration and envy of foreign visitors to the city, cannot prevent an appalling number of accidents occurring in the course of the year, even allowing for the fact that the return has reference to an area of nearly 700 square miles.

The last report issued, that for the year 1894, shows that over 5,600 accidents that were known to the police occurred in the streets of London, and 156 persons were killed, in the course of the year.

Probably this return would compare very favourably with that from any other city where the traffic is not so well regulated, but still it shows that there is an ample field for such an ambulance service as has been described.

Finally, in considering the methods whereby such a system of ambulance service could be introduced into London, a consummation devoutly to be hoped for, two points of essential difference between the hospital systems in London and New York present themselves—the absence in London of municipal hospitals, and the exemption of the New York hospitals from taxation, rendered possible by the centralisation there of the taxing power, there being but one body to levy rates for the entire city; whereas the division of London into separate parishes renders taxation necessary, in order that certain districts may not be unduly burdened in comparison with others.

These two points of difference constitute a severe handicap in the case of the London hospitals.

In addition to which, the impecunious state in which far too many of them find themselves renders it extremely doubtful whether they would care to launch forth into any fresh undertaking that would entail further expenditure.

But still there are other methods to be considered whereby the end indicated might perhaps be attained.

One is by private philanthropy; another by the Metropolitan Asylums Board undertaking the matter; a third by the Metropolitan Police Department joining such ambulance wagons to their present hand-ambulance system; or, lastly, by the London County Council adding such a scheme to the improvements they are proposing, either in conjunction with the hospitals or otherwise.

As to private philanthropy, it would be doubtful wisdom waiting for it to tend in that direction—an event that might never happen.

The Metropolitan Asylums Board is a Government Department dealing with infectious cases, and is akin to the Department of Health of New York, that has been mentioned before.

It might be possible to have horse ambulances for cases of accident and non-contagious sickness added to their present system. But some difficulty might arise in keeping the two departments separate, and in giving confidence to the public that no danger would exist of an ambulance that had carried a patient suffering from an infectious disease being used in other cases.

Still, if the matter were taken in hand by the Board it might be able to cope with this difficulty.

The Police Department, if it were so decided, might introduce and take charge of the ambulances, as the police do in Chicago and other cities of the United States.

But probably the most satisfactory way of all would be for the London County Council to take up the matter, either by subsidising

the hospitals according to the number of ambulances employed by each, as in Brooklyn, U.S.A., or by working them by means of their own employés, in conjunction with the hospitals.

The first plan of the two would probably prove the more satisfactory; but as to the details, it would be for the future to decide them.

It has only been attempted in this slight sketch to draw some attention to what is being done by other countries in the alleviation of human suffering, and it seems impossible not to believe but that in the greater London of the future the same kind of system will ultimately prevail, by whatever means it is set in motion.

And certainly, when ambulance wagons take the place of the present old-world stretcher, or the worn-out cab so often made use of in this great city, it will be a matter of wonder that, with all our many philanthropic schemes, and all our efforts to minimise the terrible suffering that flesh is heir to, we have so long neglected an example set us by far younger cities than our own.

DUDLEY LEIGH.

