THE TELEPHERAGE SYSTEM OF TRANSPORTATION.

Although the aerial cable or rope tramway system of transportation is old, and well recognized as one of the standard methods of transferring freight, the recent modification which is shown in the accompanying illustration is distinctly novel and of considerable interest. The ordinary cableway is operated by a rope of fiber or metal, which is attached to the drum of the stationary engine which furnishes the hauling power. The fundamental difference between the old system and the one here shown is that the motor forms

Carrying a Barrel of Liquid.

THE TELEPHERAGE SYSTEM OF TRANSPORTATION.

part of the traveling carriage on which the load is suspended.

As usually constructed, the weight-carrying cable is supported from projecting arms, which are fastened directly to stout wooden or iron poles, the height of the cable above the ground varying from 20 to 50 feet, or more, according to the nature of the buildings or other obstructions which have to be cleared. This supporting cable forms a track for the trolley as in the ordinary cableway; but here the resemblance ceases. Above the cable rope is suspended the feeder wire, as in the ordinary street railway trolley system, the wire being attached to the posts which support the cable and tied in such a way that it is held directly above the cable at a distance of about 18 inches. The trolley wire is itself carried by a supporting wire, from which it is suspended by means of a short wire with insulated fastenings. The traveler or trolley runs upon the main cable by means of a pair of flanged wheels, upon the axles of which are one or more small electric motors which take their current from the feeder wire by means of a trolley bar of the kind shown in the illustrations. From the frame of the traveler depends a stout bar which carries at its lower end a differential pulley hoist, to which the freight which is to be transported is attached and hauled up clear of the ground. The electric controller from the trolley is operated by a couple of wires, which extend from the trolley and are made fast to the chain of the differential pulley hoist. In operation, the freight is hung from the pulley, hoisted to the desired height and started on its trip by a pull on the controller wire. The trolley may be controlled either by motormen, two of whom are usually employed, one at each end of the system, or, if the line is of sufficient length to warrant it, a motorman may be located at intermediate stations. The control from these stations is worked by means of controller wires which extend up the trolley posts to the feeder wire, and the load may be started or stopped from either of these stations, or it may be stopped at any desired position along the line by means of the controller wires already referred to, which are carried by the trolley itself.

The trolley can be operated at various rates of speed, and it is so arranged that, in descending grades and rounding curves, it automatically controls its own speed. When the weight reaches its destination the freight is lowered to the surface by hand.

Mangoes in India.

India is the home of the mango. They seem to grow everywhere in its tropical zone. They are found wild in the jungles and are highly cultivated in gardens and mango groves. The mango of Bombay is especially famous, and is one of the most highly prized of Indian fruits.

The genus belongs to the cashew family, of which we have in the United States a native representative in the "sumac." I believe there are some fourteen species known; some have been completely naturalized in the West Indies and other tropical countries. The most important species is the *Magnifera Indica* or "mango," the Indian native name, of which there are numerous varieties.

The tree is large and spreading, with leathery, lanceolate leaves and large terminal panicles of flowers. The fruit, like the apple of the temperate zone, varies greatly in size, shape, color, and flavor, being sometimes three or more inches long. The largest varieties weigh 2 pounds, but they are usually not larger than a goose egg. The mango is at first green, then becomes partly red or orange color. Beneath the tough skin there is in the better varieties a rich, fleshy, delicious pulp, in the center of which is a large flat stone, to which the inner portion of the pulp is attached by coarse fibers, something after the manner of our clingstone peach. The poorer varieties are smaller in size, tough, and stringy, and are not edible, on account of their strong flavor of turpentine. One writer compares them to "a mixture of tow and turpentine."

The mango season commences in this part of India in May and June, just before the monsoon. The "Alfoos" (or Alphonso) is claimed to be the best variety of the mango. The finest sell in the Bombay markets at the beginning of the season at 4 rupees ($1.30) per dozen, and later drop in price one-half. The other varieties cost according to quality, some as low as 3 annas (6 cents) per dozen; in fact, "jungle mangoes" may be had for even less, but this wild kind is only eaten by the natives.

Inarching is the favorite system of improving the mango by grafting in Bombay.

The wood of the tree, together with sandalwood, is used by the Hindoos for burning. The bark possesses astringent properties, and when cut exudes a resinous and astringent gum. The natives make use of the leaves and leaf stalks in hardening the gum, and the undeveloped fruit (ground into a paste) is claimed to possess vermifugal properties. The seeds when boiled are eaten in times of scarcity of other food.

The fruit is sent from the West Indies in the form of a sweetmeat, but in that state the sweetness has displaced the flavor. The green fruit, pickled and highly spiced, has for some years been exported from India to England. Fresh mangoes, for the first time, have been exported in large numbers from Bombay to London during the present season. It is claimed that they not only reach their destination in fairly good condition, but are fetching fancy prices, being superior to the mangoes from the West Indies. The cast-off wooden boxes used by the Standard Oil Company in shipping case oil to India are utilized in this enterprise. This crude beginning promises to develop into a considerable trade.

I am shipping this week, in a specially made case with plate-glass top, twelve mango grafts of nine different varieties to an enterprising horticulturist at West Palm Beach, Indian River, Florida. This is the second shipment, the first being made at about this time last year, but, on account of the delays attending

Carrying a Workman.

THE TELEPHERAGE SYSTEM OF TRANSPORTATION.

transshipments at London and New York, the grafts were about ten weeks in reaching their destination and were all dead on arrival. It is hoped better success will follow this consignment.

Almost all the fruits of the Old World are said to be improved by being transplanted in American soil. If the Bombay Alfoos mango can be thus improved, we shall have found a delicious fruit.—Wm. Thos. Fee, Consul at Bombay.

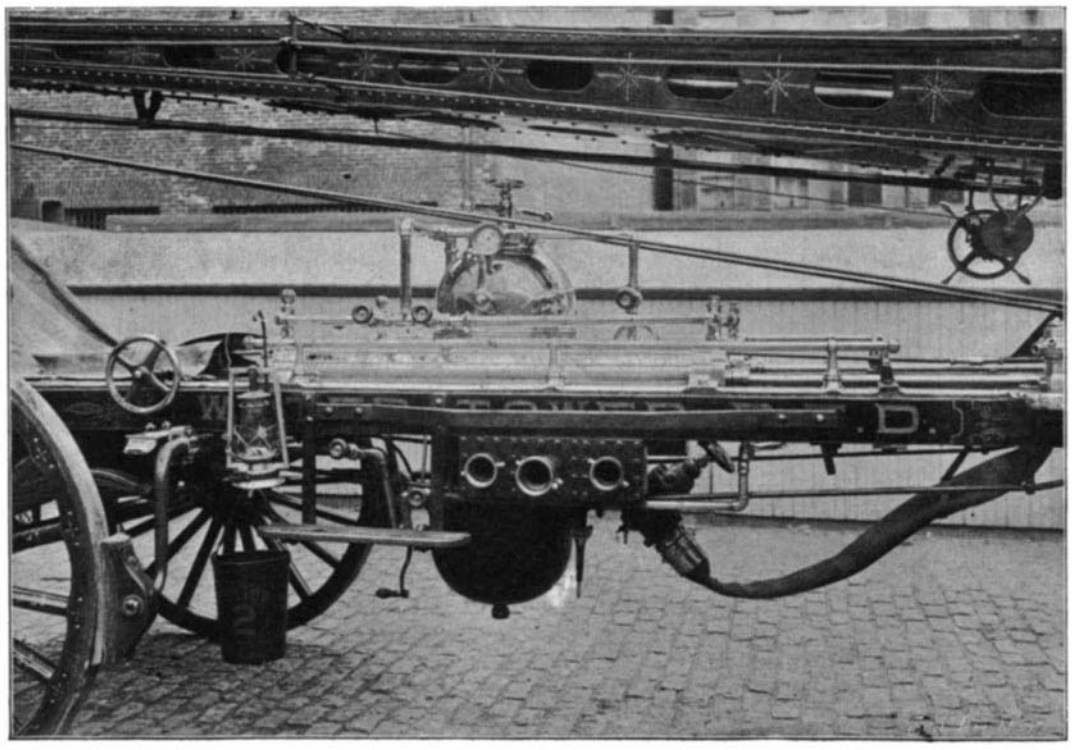
A FIRE DEPARTMENT DRILL SCHOOL.

BY WALDON FAWCETT.

Even with the present keen rivalry among the fire departments of the leading American cities in the maintenance of drill classes designed to afford instruction in every branch of fire fighting and the saving of human life at fires, the Boston Fire Department Drill School ranks as an exceptionally interesting institution, and one wherein the training is as thorough as it well may be.

Every pupil in the school during his attendance goes through all the maneuvers necessary to the handling of the various pieces of machinery, ladders, etc., now used by modern departments for subduing all manner of fires under all possible conditions. This training does not, of course, include instruction in the management of steam fire engines, a class of duties for which a special branch of schooling has been provided.

Every new member of the Boston department must attend this school for a period of thirty days, at the expiration of which time he is, if he proves satisfactory, placed "on probation" for six months. During this half year interval the recruit is in reality a regular member in all his duties and virtually is merely waiting for time to advance to the higher positions. About 5 per cent of the men who enter the drill school never get into the department. They come to a realization, of their own accord usually, that they are not suited to the work, and thus it is only on rare occasions that the instructor is obliged



WATER TOWER USED IN PRACTICE BY FIREMEN.

to inform any candidate that his work is below the standard. Admittedly every unqualified person kept off the rolls benefits the general efficiency of the department just as unmistakably as does added detail in the training of the eligible recruits.

The course of instruction at Boston includes practical work with all kinds of play pipes, cellar pipes, nozzles, extinguishers, hose-hoists, two, three, and four-way connections and the innumerable small accessories employed in the most up-to-date practice. The students are compelled to put all these in turn into actual service; and, in consequence, when the prescribed period has expired, the novice is such no longer, but a thoroughly competent member, having every detail fresh in his mind and awaiting only actual experience at fires to complete his knowledge.

As in all the most progressive schools in this country extended attention is given to the subject of life-saving at fires and instruction in the uses of all the devices employed where human life is imperiled. One of the first pieces which the novice has to handle is the Pompier ladder, and he is taught that there is more of a knack in managing this single hardwood stick than would be imagined, since the top end carries most of the weight and has to be balanced carefully at all times or it will topple over and get beyond the control of the fireman and fall to the ground.

Instruction is also given in one of the most valuable uses to which the Pompier can be put, namely, its employment supplementary to an extension ladder. When the ladder proves too short by one, two or three stories it is often possible for a couple of men to run up and piece it out, with a scaling ladder, thus obviating a delay which might prove very disastrous. That portion of the work which is the supreme test of a man's nerve, the surmounting of the coping, when the man is in reality climbing up the under side of the ladder with the Pompier swinging clear of the wall, is not attempted until the recruits have been very thoroughly coached and have proven conclusively an ability to preserve clear-headedness under trying circumstances. Of course the "chain-building" with scaling ladders is an important branch of the work and the men are kept at it until each crew can maintain an almost continuous upward movement and reach a roof quicker than any extension ladder.

The various styles of aerial ladders are explained and every man is made familiar with the working parts. For this purpose one of the regular companies of the department is sent to the drill yard and the new men receive practical instructions. The life gun is another feature of the equipment, the use of which is taught to the men, a very wise precautionary measure, since every ladder truck in the city of Boston now carries one of these handy life savers, and a man may be called upon to use the weapon at any time.

Among the larger pieces in the use of which the school is drilled is the Haile water-tower. This is a most valuable piece of apparatus for use in operations against lofty buildings. It consists of a telescoping stand-pipe, capable of raising to a height of 65 feet and carrying a large line (4-inch) of hose up through the center, in such a manner that a horizontal stream of great force and capacity may be directed through the windows and, entering straight as it does, penetrate to the farthest corners of the building. The tower is raised by means of chemical pressure generated in a special tank for the purpose and acting through two long cylinders on the frame. The extension, or tip, is wound up much the same as on the large ladders.

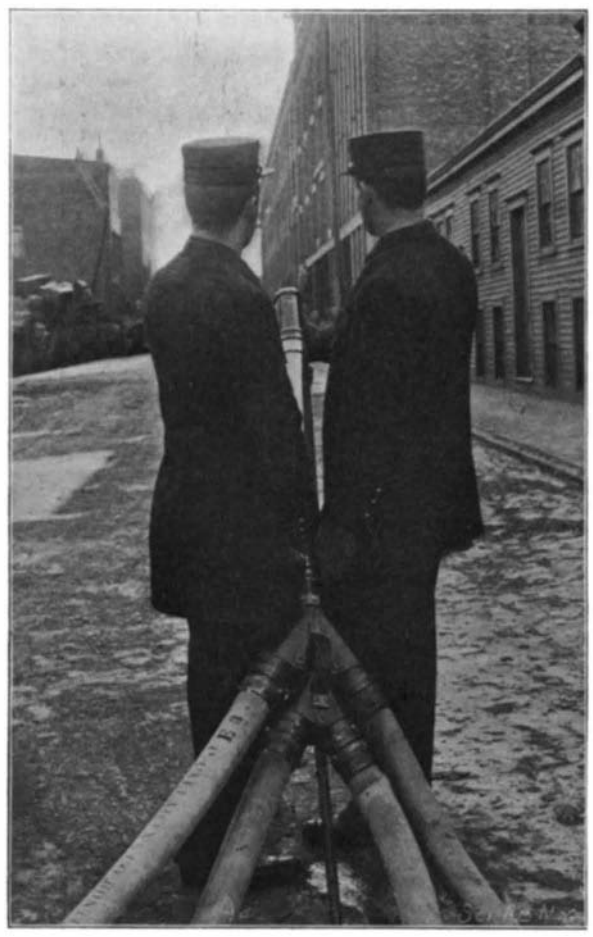
The value of the jumping net as a life-saver is most highly estimated in the Boston department, and every man in the training school is instructed not only to properly hold it, but as to the most approved manner of jumping into it from various heights ranging up to 30 feet. After a few trials it is an easy matter to land in a sitting posture, the proper way, and it has been proven at the Boston school that a man can jump into the net from a height of 50 feet and suffer no inconvenience. However, 30 feet is the limit required by the instructor.

BOSTON FIRE-DRILL SCHOOL—FIREMEN READY TO PERFORM EVOLUTIONS.

Conditions in the Philippine Islands.

Conditions in the Philippine Islands as seen through British eyes are pictured in a report of the British Consul at Manila, which has just reached the Treasury Bureau of Statistics. It says:

"The gigantic nature of the task before the United States authorities in these islands is probably not understood in the United Kingdom. The group has an area of 114,000 square miles (about four-fifths of that



FOUR-WAY CONNECTION ATTACHED TO NOZZLE.

of the United Kingdom). The islands are very scattered, the extreme north and south being about 2,000 miles apart. They are about 600 in number, though only 11 are of any size or importance.

"The population is variously estimated at from 8,000,000 to 10,000,000.

"To reduce this huge tract of land and water to subjection the Americans have at the time of writing some 60,000 troops and a small naval force. The smallness of the latter and the lack of light draught vessels make it very hard to watch the coasts of the islands, and the natives on being driven from one are able to escape to another and recommence operations. The natives are in great measure badly armed and unskilled in the use of firearms, but are sufficiently well led to avoid general engagements, and confine themselves to attacks on the lines of communication. At the same time they have a system of secret agents all over the archipelago who manage in various ways to collect funds for their war chest, Manila itself, as recent arrests have shown, being their best hunting ground.

The configuration of the islands is very much in favor of the guerilla warfare carried on by the natives. Steep, volcanic ranges, large swamps and forests, along with a deficiency of roads, all tend to make the movement of troops and supplies difficult. The climate, too, especially in the rainy season, is trying. In spite of the above difficulties the United States troops have made great progress. Posts have been established all over the islands, from which the troops make constant expeditions against any considerable force of natives coming together in their neighborhood, with the result of a very large and constantly increasing total of killed and wounded on the native side at small cost to the American forces. Owing, however, to the fact that the peaceful cultivator of one day can by digging up his weapons become the truculent bandit of the next, traveling is not encouraged. The deportation of leading rebels to Guam, one of the Ladrone Islands, and especially of the Manila contingent, who although not actually in arms were directing and financing operations, has had a very salutary effect, especially as deportation was coupled with confiscation of property.

"A 'Federal' party has been formed to propagate pro-American opinions among the natives, in which the native judges and other officials are taking a leading part. Native provincial governments are in course of organization in the more pacified districts. Whether they will be a success or not is problematical. American schools are being established all over the islands, the staffs of which are brought over from the United States.

"Prices continue high, especially rent. Few new houses have been built, and the influx of American officials and their families still continues. The result of this is that the most ordinary style of house becomes an object of keen competition, and rents have been in many cases quadrupled in the past three years. The average rent of a small house in the suburbs suitable for four or five persons is now about £20 ($97) per month.

"There are no openings for Europeans here except with capital, the number of destitute and unemployed Europeans and Americans being constantly on the increase. There is no difficulty in filling up posts of any sort from the American volunteers now being disbanded here in large numbers, many of them being men of superior education.

"British interests in the Philippines are much larger than currently supposed at home. There are about twenty British firms in Manila. Their importance will, perhaps, be best gaged by the fact that two out of the three banking establishments in the city are branches of well-known British corporations. They include the largest import and export firms, but engineering works, ship repairing, stevedoring and many other industries are also represented. The larger firms have branches in most of the provincial ports as well as rice and sugar mills up country. The only railway in the Philippines, that from Manila to Dagupan, the port of the rice-producing district of the island, is the property of a British company, and many undertakings with foreign names are carried on mainly by British capital and energy. Taking into account the numerous insurance, shipping and other firms for which local firms are agents, it will be evident that British interests in the Philippines run into millions.

"Trade in the year 1900 has been at a comparative standstill. In the early part of the year, owing to the general anticipation of a speedy pacification and subsequent boom in trade, large imports were made by the various firms in the islands. The coun-