PNEUMATIC TUBE DELIVERY SYSTEM AT THE WALDORF-ASTORIA HOTEL.

The vast size of the Waldorf-Astoria Hotel, in New York city, and the necessity of catering to the wants of its 1,200 guests with the comfort, regularity, and dispatch which should characterize the most famous hostelry in the world, have necessitated the installation of some very elaborate and costly appliances. Prominent among these are the bell-work system and the system of pneumatic tube delivery. The illustrations which accompany this article deal with the latter system, but the two are so intimately related and interdependent that we will give a brief account of the electric call and telephone system before taking up the description of the pneumatic dispatch service.

Local Floor Station.

The equipment for electric signals, electric annunciator bells, house telephones, etc., includes, perhaps, the largest and most extensive network of lines ever introduced in one single building, not even excepting telegraph offices. In this instance the network of circuits has been designed and installed on the same principle pursued in the electric lighting circuit work, namely, of subdividing each floor or portions of each floor into sections or "districts." Each floor is subdivided into a number of "districts," each of which has, so to speak, its local station. All of these local stations are "interconnected" by trunk lines connecting between them, and also with the main central or operating station, which is located at the ground floor. At this main central station all the trunk lines converge from all directions. At each floor the lines also converge to a local or floor office (see illustration). An idea of the magnitude and extent of the line work requisite for all signal and communicating purposes in the building may be obtained from the statement that at each local office there are several hundred lines, while the number of lines that converge at the main central office aggregates some four thousand. There is an annunciator at each floor, and the connections are made in such manner that a call from any room in the hotel is recorded, not only at the floor office of the corresponding floor, but also in the main central station at the ground floor, thus giving notice at two points in each case. The floor office at each floor has a system of individual connections with the "service room" at each floor by means of which signals may be exchanged not only by means of electric bells and annunciators, but also by telephones. There is also an elaborate system of telephone connections between each service room and the kitchen department.

The pneumatic tube system, which was installed by the Miles Pneumatic Tube Company, of this city, has been in uninterrupted service for about a year and a half, and, although it runs continuously from six o'clock in the morning till midnight, and handles, in the busy season, as high as ten thousand letters, cards, newspapers, etc., per day, there has not been a single case of breakdown in the eighteen months' service. The enormous number of missives sent through the tubes is one of many indications of the magnitude of this hotel, whose main façade, sixteen stories, or 250 feet in height, reaches for 335 feet on Thirty-fourth Street, while the depth of the building is 200 feet, the hotel occupying the whole of a city block. There are 1,200 rooms, in which, during the present season, as many as 1,500 guests have been housed without any overcrowding.

To send and distribute the mail, newspapers, etc., and carry up visitors' cards to these sixteen floors by the ordinary methods would call for an army of messenger boys that would seriously encumber the elevators, besides inflicting an undesirable delay on the visitors. The pneumatic system was installed to expedite this work, and the success with which it is now operating renders it one of the most interesting features of the hotel plant. The tubes, fourteen in number, are carried up in a nest, one to each floor, as far as the fourteenth floor. They terminate on the ground floor at a main central station, where the combined transmitters and receivers are arranged in a long row above a marble slab, as shown in the accompanying illustration, and numbered. The tubes are of 3-inch seamless brass tubing, and each tube runs direct to a local floor station where there is a combined transmitter and receiver, similar to the one at the central station. The local station for the pneumatic system is also the local station for the annunciator and telephone system above referred to, and it is operated by a clerk, assisted by four messenger boys or "pages."

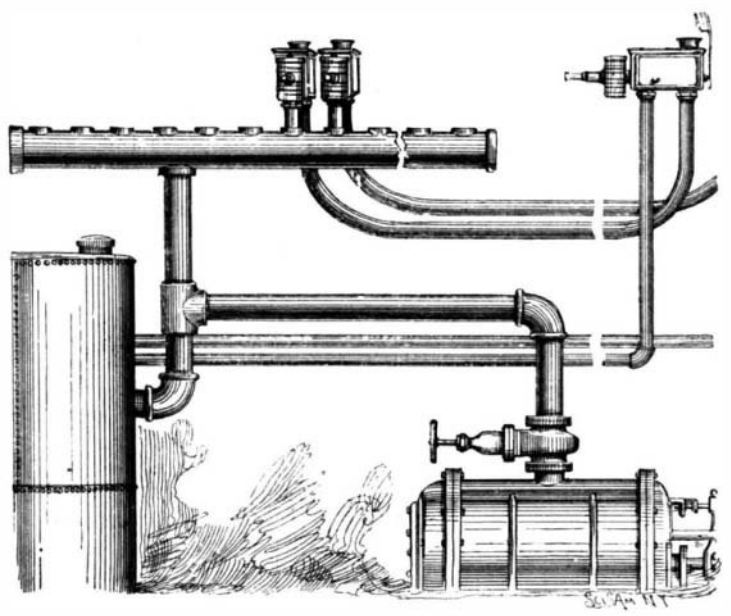
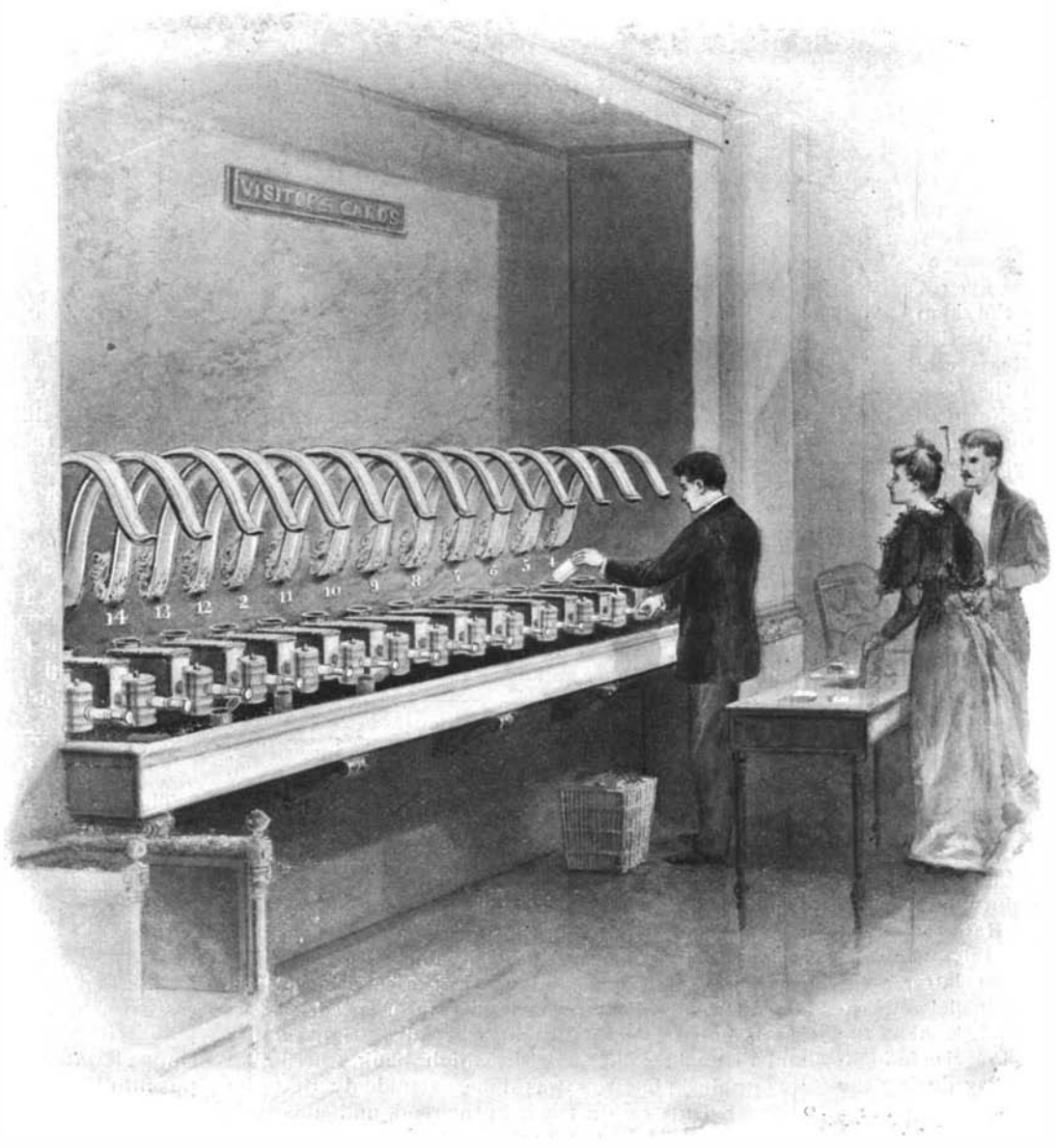


Diagram of the Pneumatic Tube System.

When the hotel mail is delivered at the office, that part of it that is to be delivered from floors 1 to 16 is placed at once on the counter of the main central station, where it is sorted and dispatched to the various floors. Here it is distributed by the "pages" at the various rooms. During the present season the postal delivery that was handled through the tubes averaged 6,000 pieces per day. The newspapers, of which some 2,000 are delivered every day, are sent up in the same way, a large carrier ten inches in length being used for this purpose. To this must be added the number of visitors' cards and various smaller articles that are carried, which together bring up the total delivery to 10,000 pieces and over in the busy season.

The arrangement of the compressors, tank, piping, and transmitters will be understood from diagram, above. The compressors, which are situated in the basement, deliver air at from two to three pounds pressure to a tank, from which mains deliver it to the central station and to each local floor station. The main to the central station conducts the air to a horizontal "manifold" pipe, which is located beneath the marble slab above which the long row of transmitters is located. The main to the local stations extends the full height of the building, and has a local branch extending to each transmitter. There is also a transmission tube connecting each local



Main Central Station.

PNEUMATIC TUBE DELIVERY SYSTEM AT THE WALDORF-ASTORIA HOTEL.

transmitter with its own transmitter at the central station.

The distinguishing feature of this system is that only one tube is necessary for both transmitting and receiving, as distinguished from the vacuum system, which requires double tubing between each station, one for receiving and the other for transmitting. A constant pressure is automatically maintained in the air tank, and there is a flow of air through the tubes only when a carrier is in transit. The transmitter and receiver, which was designed by the treasurer of the company, Mr. George H. Woodman, is an extremely ingenious automatic device, which, upon the operator pushing in the knob or button of the valve controller, admits a current of air behind the carrier and maintains the flow until the carrier has been ejected at the other end of the tube. The action is as follows: As soon as the carrier has been dropped into the tube, the operator pushes in a rod, which is normally pressed out by a coil spring. As the rod enters it first shuts a sliding gate, closing the mouth of the tube, and then by means of a cam on the rod releases a valve which admits compressed air from the main to the transmission tube at the back of the carrier. At the same time a locking piston descends and locks the valve controller stem in position. Perforations in the locking piston now permit the air to force oil through to the back of the piston, causing it to rise and withdraw the locking-pin. As soon as the controller stem is unlocked it flies back, releasing the sliding gate and leaving the tube ready for the insertion of another carrier. It is evident that, by regulating the flow of oil through the locking piston, the opening of the sliding gate can be timed to agree with the time of transit of a carrier through a given length of tube.

Particular attention has been paid to the muffling of the exhaust, with the result that the system, as installed at the Waldorf-Astoria, is practically noiseless.

REAR-ADMIRAL CHARLES O'NEIL, U. S. N.

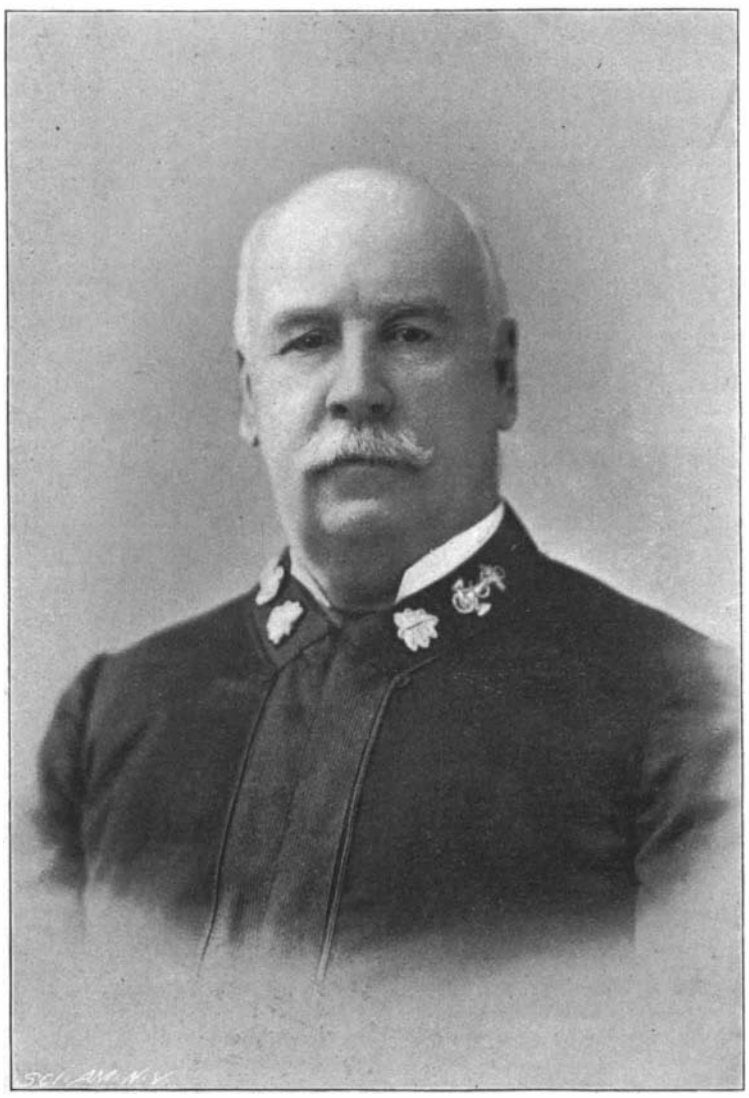
We have already given biographical accounts of Commodore, now Rear-Admiral Hichborn, under whose direction the hulls of our war vessels are constructed, and also Rear-Admiral Melville, Engineer-in-Chief of the Bureau of Steam Engineering; now in natural order we come to Rear-Admiral Charles O'Neil, present Chief of the Bureau of Ordnance, U. S. N.

Rear-Admiral O'Neil entered the navy in July, 1861, being appointed from the State of Massachusetts. He received his early education in the public schools of Roxbury, which is now a part of Boston. Before entering the navy he made two voyages to the East Indies, and on the second voyage he was wrecked in the Indian Ocean, the disabled vessel being the "Oliver Putnam," which came from Newburyport. After the vessel foundered he drifted about for several days in a small boat with five companions. They were finally picked up by a passing vessel and taken to the island of Mauritius, from whence he subsequently returned to the United States. He was at that time but eighteen years of age.

His first service in the navy was on the sloop of war "Cumberland," in which he participated in the attack on Forts Hatteras and Clark, and in the engagement with the Confederate ironclad "Merrimac" off Newport News, March 8, 1862. In this affair the "Cumberland" went down with colors flying, with a loss of over a hundred of her crew. Rear-Admiral O'Neil was promoted for gallantry on this occasion. His next service was on board the gunboat "Tioga," of the James River flotilla, in Admiral Wilkes' special West Indian squadron, and in the East Gulf blockading squadron. During the latter assignment he contracted yellow fever at Key West, but, fortunately, he recovered. He afterward served as navigator of the gunboat "Rhode Island," and took part later in both attacks on Fort Fisher. His next service was in the European squadron on board the "Shamrock," which was followed by duty on board the monitor "Dictator." He also served in various capacities on the "Dacotah," "Serene," "Galena," "Supply," "Lancaster," "Wasp," "Richmond," and other vessels in the south, South Atlantic and Chinese stations, and between cruises he performed duty on various receiving ships and at navy yards. He commanded the "Dolphin" on the home station, also the "Marblehead," and while in command of the latter went through an interesting experience at Bluefields, Nicaragua, and later took his ship to the Kiel Canal at the opening ceremonies and rendered good service in looking out for American interests in Turkey during the Armenian excitement of a few years ago.

When on shore Admiral O'Neil has been engaged for the most part in ordnance work at Boston, New York, Cold Spring, and Washington, having twice been superintendent of the naval gun factory at the latter place, and has contributed in a great measure to its development and present efficient condition. While he did not originate the manufacture of smokeless powder, it fell to his lot to introduce it into the navy for general use, and through his efforts a government factory for its manufacture is being established at Indian Head, near Washington.

He was appointed Chief of the Bureau of Ordnance, June 1, 1897, to succeed Admiral Sampson, and during his term of office he has had the opportunity of safely piloting one of the most difficult branches of the government service through a critical period, so as to secure great credit to the Bureau and to himself. He has paid particular attention to the magazine facilities for the navy on shore, and greatly extended and improved them, and through his efforts has secured a large appropriation for a first-class establishment at New York, to which we have already referred. The underwater discharge for torpedoes in new vessels has been brought about by him, and he has recently had new designs made for guns of calibers calculated to give them greatly increased power and efficiency. He also devoted his attention to new types of gun mounts and the general improvement in the details of turrets, ammunition hoists, loading and other gear, so as to embody the latest and best features that experience has shown to be desirable. Under his direction a new and thoroughly modern machine shop has just been completed at the gun factory at Washington, and the main gun shop is now extended 290 feet, which will make it 936 feet long, and one of the finest shops of its kind in the world. He has lately caused to be erected and equipped at the same place a fine cartridge-making plant, and has improved the ordnance department of the navy in all directions, and, if he is spared to fill the unexpired term of his office, he will undoubtedly contribute still more to its efficiency.



REAR-ADMIRAL CHARLES O'NEIL, U. S. N.

Motor Car Accident.

Now that the number of motor cars is increasing, we may look for a large number of accidents. They are already beginning to have them in France and England, and if the carriages are allowed to make the speed which we sometimes see even in New York, serious accidents cannot be prevented. Recently the trial trip of a motor wagonette at Harrow-on-the-Hill, near London, resulted in the death of the driver and serious injury to several others. The party left Harrow for London at a good speed; the carriage dashed down Grove Hill at a very high rate of speed, and as it was impossible to turn into a road at right angles and to avoid collision with a high bank, the brake was applied; but this was done so suddenly that the car reared up, tore a track in the road, and collapsed. The occupants of the car were thrown out and the driver was killed. A spectator states that the rubber tire first flew into the air and then the car turned completely over. The jury returned a verdict of "accidental death," and added that the wood of which the spokes were made was of a very inferior quality and not sufficiently strong to bear the strain put upon it.

Winter in the Klondike.

United States Consul J. C. McCook writes from Dawson City, under the date of February 11, stating that the weather for the last three months has been a pleasant surprise to people who have spent their first winter there. The coldest weather was between the 8th and 15th of November, the thermometer registering 40° to 50° below zero. The month of December was ideal winter weather, the thermometer remaining around zero, and there was no wind to amount to anything. In January there were a couple of weeks of very cold weather, but those who were properly protected did not suffer. There have been a great many cases of frozen limbs, and amputation was sometimes necessary. Such cases usually came from long-continued exposure on a particularly cold day, or in "stampeding" to relocate claims where owners failed to do the necessary work or to some locality which had been specially recommended.

It is not an uncommon occurrence for one to travel from fifty to sixty miles in a single day with a couple of dogs, starting at daylight and completing the trip in the same evening. Such speed can only be made in winter, however, for in summer one must traverse bogs and morasses and wade through streams. Provisions can also be transported much easier in winter than in summer, for a couple of dogs can easily pull from 500 to 800 pounds on a sled. In summer the load would have to be packed on the backs of mules and bronchos, making locomotion much more expensive and slower. The sun was lost sight of in Dawson on the 5th of December and it did not reappear again until the 7th of January. On some of the creeks some fifteen or twenty miles from Dawson, where the hills rise abruptly from the water, the sun was lost sight of the first week of November. The temperature on the creeks is generally about 10° warmer than at Dawson, because that place is more in the open and is exposed to draughts of wind. The darkness of winter days, like the coldness of the Arctic region, has been very much exaggerated. There was good daylight from 9 o'clock in the morning until 3 o'clock in the afternoon. Of course, in offices and stores lights had to be burned all day. In the first weeks of February the daylight lasted from 6:30 in the morning until 5:30 in the evening, and in a couple of months from that time there will be daylight all the time.

Motor Carriage Exposition at Berlin.

There will be held at Berlin, from the 3d to the 28th of September, 1899, an international exhibition of motor carriages open to all exhibitors. The exhibits will be placed in six classes, including motor carriages for passengers, motor carriages for freight, motor cycles and trailers, motors and accumulators for motor carriages, and parts and wheels for motor carriages. The exposition will be held in a covered building known as the Exercier-Haus. It will be open daily from 9 A. M. to 6 P. M., and it is possible also in the evening. A series of tests, races, etc., are also in contemplation. The exhibition space will be rented, and not more than two examples of the same class will be permitted to each exhibitor. Intending exhibitors must signify their intention of exhibiting either by letter or telegram before the 15th of April. The committee has power to accept or reject any article offered. Photographs must also be provided showing the carriages or other articles. There are other rules governing the show. Neither prizes nor medals will be given. The advantage to exhibitors will be confined to the results of a competitive test, which will be made with great care.

The "Somers" Again Disabled.

The United States torpedo boat "Somers," which was bought just before the war with Spain broke out, and was towed to Plymouth from Falmouth on April 5, has again broken down. This adds another to the chapter of accidents which this boat has suffered. She was built at Elbing, Germany, by Schichau. She was taken to Weymouth, England, just after she was completed, and turned over to the agents of this country early in April. She finally started for America in company with the "Topeka," but she sprang aleak and shipped water at such a rapid rate that she finally put into Portland for repairs. After they were made she got as far as Falmouth, and she was obliged to enter that port in a crippled condition. She was again docked for repairs, but, owing to the proclamation of neutrality made by the British government, she could not leave Falmouth, where she remained during the war.