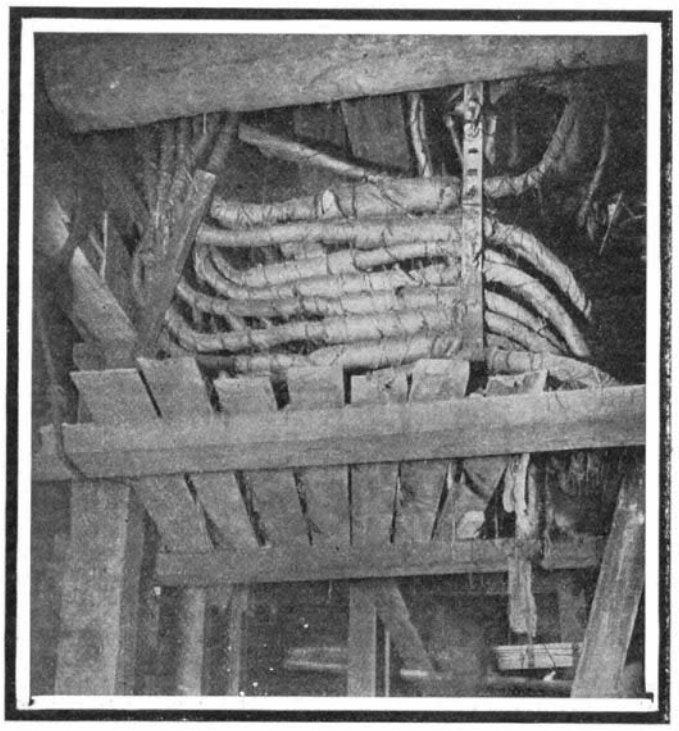
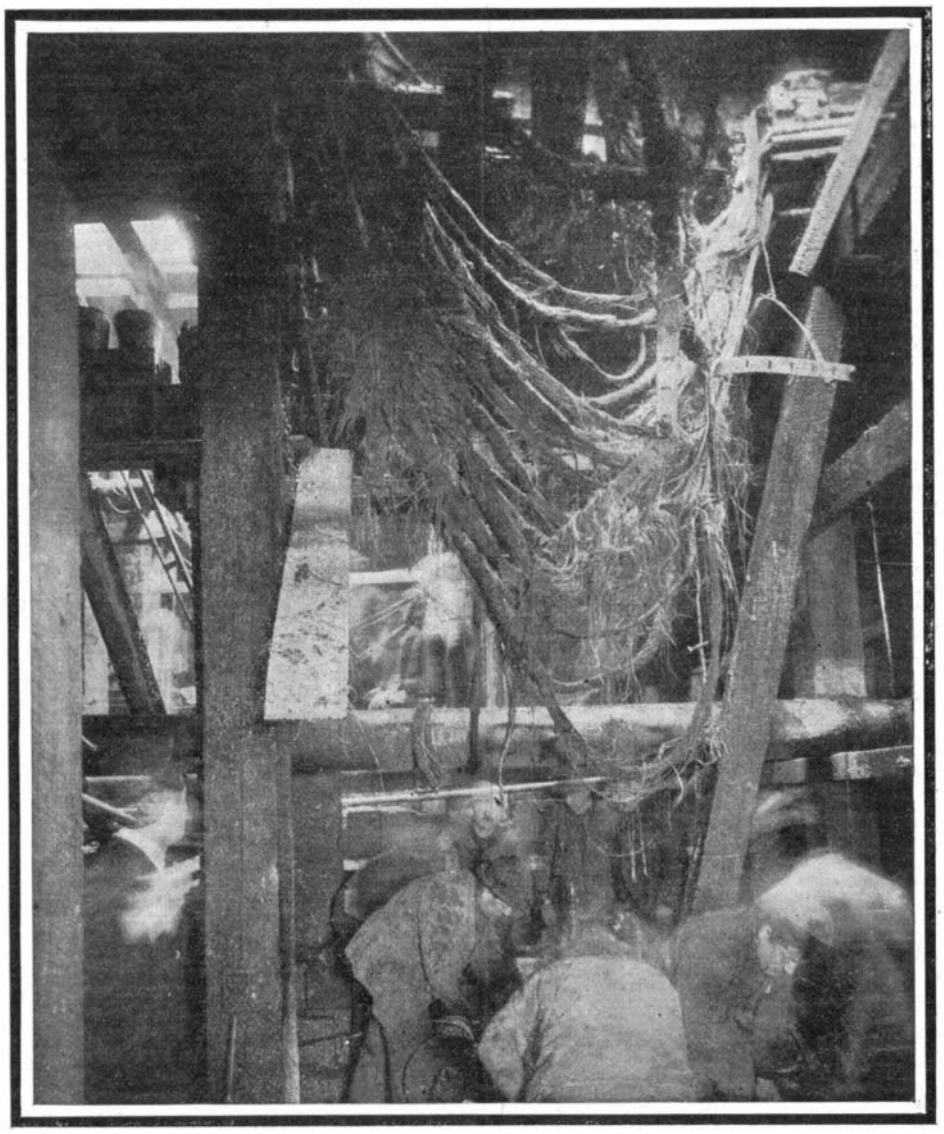
A PECULIAR BLAZE IN THE NEW YORK SUBWAY.

The blaze in the subway at Fulton Street last week offers a typical example of one of the many freakish fires which the New York fire department is every now and then called upon to handle, and incidentally shows the wonderful recuperative powers of the telephone and telegraph companies of New York city. The subway at the point where the fire occurred is being excavated by what is known as the "covered excavation" process, that is, the street paving is replaced by heavy planks which are supported on columns, and excavation is carried on underneath this planking. The iron pipes which cover the telephone and telegraph wires are carried along the top of this tunnel ceiling. The wires, it will be understood, are wrapped into cables and covered with a soft lead sheathing. A brick and concrete manhole which was formerly located at Fulton Street had to be torn away to permit building of the subway, and the cables which at this point were not protected by iron pipes, were supported on a wooden platform hung from the beams of the ceiling, and were for some mysterious reason wrapped with burlap. The fire was caused by some telephone repair men who, while driving out the moisture from some of the wires by pouring heated paraffin over them, incidentally set fire to the paraffin. A dense smoke was emitted by the fire which drove the men out of the subway. The blaze quickly communicated to the burlap covering, and developed sufficient heat to melt the lead sheathing of the cables and attack the insulation of the wires within. The fire was quickly extinguished by the firemen who arrived promptly on the scene; but the havoc wrought in the mean time was tremendous. The accompanying photograph of the scene shows what a hopeless tangle the telegraph and telephone companies had to unravel. Over 5,000 telephone wires, 1,400 telegraph wires, a large number of private wires, and some of the fire-alarm wires were broken, bent, twisted, snarled, and fused together in a seemingly inextricable mass. Thousands of circuits were broken or short-circuited. The New York Telephone Company suffered the worst damage. At the Cortlandt Street exchange, every signal on the switchboard flashed forth at once, creating the wildest confusion. The station was obliged to suspend business, thus seriously inconveniencing a large part of the lower New York business and financial district.

Repairs were begun immediately and thirty-four hours after the fire the tangle had been all cleared and the circuits restored to their normal condition—a most wonderful achievement when the difficulties of the situation are considered. The iron tubing had to be cut away at each side of the damaged section in order to expose uninjured lengths of the cable on which the repairmen could operate. Each wire of the cable had to be sorted out and its number ascertained from the central exchange before the wires could be spliced together. This was done in the following manner: A wire of a certain number was grounded at the central. At the break a telegraph relay and battery were provided. One of the relay terminals was grounded and by connecting different wires to the other terminal one was finally reached which completed the circuit through the relay, as indicated by a "click" of the sounder. That wire was then secured in an index board in a slot labeled with the number of the wire, as telephoned from the central station. This operation was greatly expedited by connecting a large number of wires at a time with the relay and then, if a click was heard indicating that the sought-for wire was to be found in that bunch of wires, they would be separated into two groups. The group that next produced a click would then be further divided, until it was narrowed down to the desired wire. Owing to the large number of cables which had thus to be operated on, and the limited amount of space available for the repairmen, it was decided to splice together the wires of certain of the cables without attempting to sort them out and then breaking the cables in the vaults at the central to sort out and connect the proper wires with each other. This, of course, necessitated more splicing of wires, but it resulted in a considerable saving of time, owing to the fact that the cables could all be operated upon simultaneously. It is estimated that 25,000 splicings were made. The repairs were necessarily temporary, because in their haste to bring the system back to its normal state the telephone company made connections without running the cables through the iron tubing. It will now be necessary to connect the temporary wires with permanent wires run through iron tubes, which, however, can be done quite easily without in any way interfering with the operation of the telephone system.



POSITION OF THE TELEPHONE CABLES BEFORE THE FIRE OCCURRED.



DISASTROUS RESULTS OF A SMALL BLAZE IN THE SUBWAY.

Homogenized Milk.

BY E. W. ALLEN.

To the many methods of purifying, modifying, and preserving milk must now be added a process for *homogenizing* it so that it will keep almost indefinitely without change in its physical condition. The tendency of the fat globules to separate from a condition of suspension or emulsion, as they occur in freshly drawn milk, and to collect at the surface in a layer of cream, causes milk to lose its homogeneity very quickly; and while this creaming tendency is highly advantageous in butter making, it is objectionable for many purposes to which milk is put. The fat globules in milk vary greatly in size. Not only are those of some breeds and individuals of a large average size, but in the same sample of milk there are always a considerable number of very minute globules and others that by comparison are quite large. The larger globules rise to the surface more rapidly, and have a greater tendency to coalesce. The very smallest globules never rise, but remain in a state of suspension.

This inactivity of the smaller globules has suggested a mechanical means of rendering milk non-creaming and thus preserving its homogeneity. Such a process has been perfected and patented by Gaulin of Paris, and is coming into use in Europe. It is designed to reduce all the fat globules to a very minute size, by means of pressure and concussion. Milk heated to about 185 deg. F. is placed in a closed drum, and under a pressure of 250 atmospheres is forced through a series of very fine openings, the jets as they issue coming in contact with a porcelain plate which is held in place by a stiff spring. The effect is similar to that produced when mercury is poured on the floor. The fat globules are broken up by the concussion into very minute particles, which do not tend to coalesce or rise to the surface. Under the microscope the globules appear as almost immeasurably fine granules, distributed uniformly through the milk, and are evidently more intimately associated with the casein. While the globules in ordinary milk range, on an average, from 0.0016 to 0.01 millimeter in diameter, those of the treated milk average only about 0.0008 millimeter in size. Samples of the treated milk have been kept for six months without change in the character or uniform distribution of the fat globules. Furthermore, treatment of the milk in a powerful centrifugal machine which creamed ordinary milk completely, had practically no effect on the "fixed" milk, showing how thorough had been the change in the mechanical condition of the fat.

An investigation was recently reported in the British Medical Journal of the process as carried out by a dairy company in London. In this case the "fixing" was combined with pasteurization, and the milk was aerated with a mixture of oxygen and carbonic acid under pressure as it was bottled. The only apparent change in the milk was in the fat globules, the other constituents, including the proteids, being found to be unchanged, and there was no decrease in digestibility as shown by experiments in artificial digestion. The treated milk kept perfectly sweet for over six weeks, and remained sweet for several days after opening. It showed no tendency to cream, but was perfectly homogeneous when the bottles were opened.

The process is thought to be especially applicable in putting up milk to be kept a long time, or partly condensed milk to which no sugar has been added. The cream which rises in a buttery mass in the neck of bottles of pasteurized milk is difficult to diffuse uniformly through the milk when it is used, and this has been an objection to ordinary pasteurized milk, especially for children's feeding.

The apparatus in most common use treats about 2,000 pounds of milk an hour, and requires 7 horse-power for its operation. It is said to be easily cleaned, and the parts coming in contact with the milk are mostly of bronze. To prevent clogging the machine, the milk is filtered before entering the drum, which takes out all the fine particles of dirt.

Crypt Under St. Mark's.

Signor Manfredi, an architect attached to St. Mark's of Venice, while engaged in reproducing the floor of the basilica, found the remains of ancient constructions, among them parts of a crypt and a tomb, with a Byzantine cross of the seventh century. The discovery is considered of much historic importance, and is being widely discussed by archæologists.—New York Tribune.

A complete mint, in operation, is one of the features shown by the United States government at the World's Fair. At the close of the Exposition the plant will be sent to Denver, Colo., for permanent use.