

# SCIENTIFIC AMERICAN

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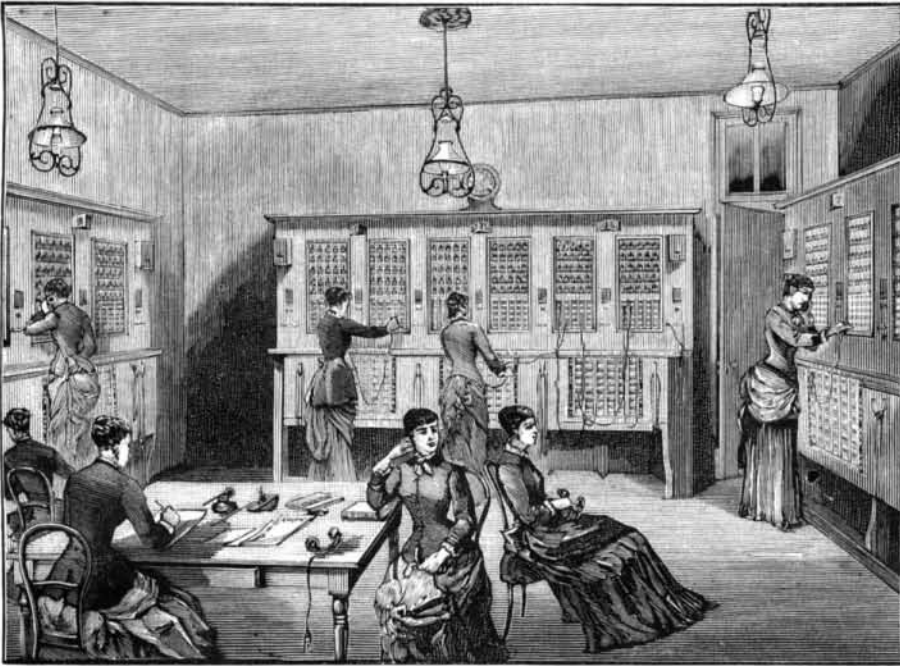
## THE TELEPHONE CENTRAL OFFICE SYSTEM OF PARIS.

Paris has ten telephone central offices and three thousand subscribers. The general plan of working the central offices does not differ materially from that of some of our American exchanges, but the arrangement of the line wires is very dif-

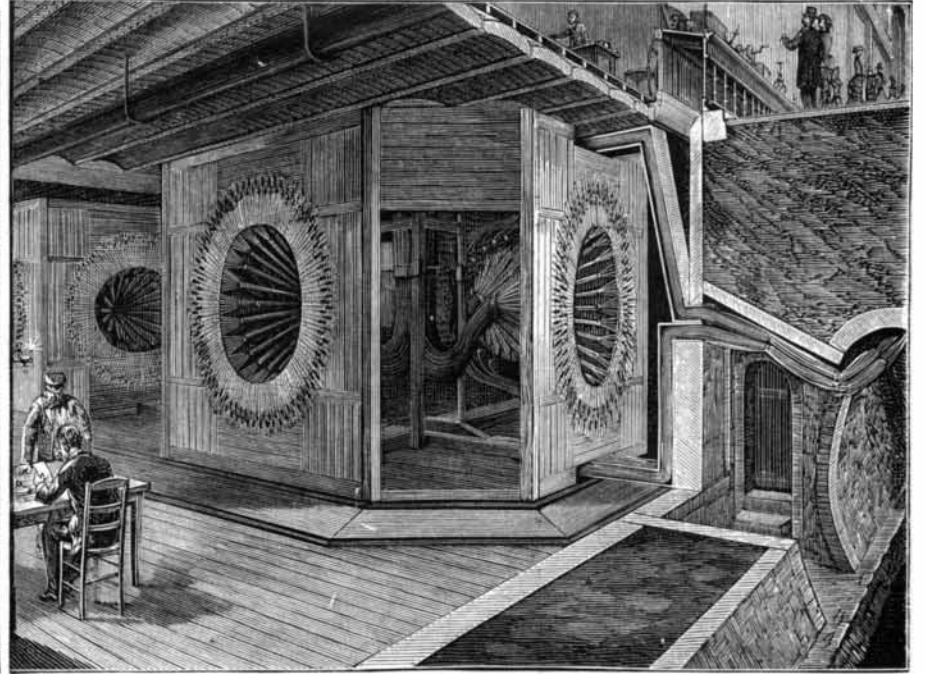
The annunciators and switches are arranged in groups of twenty-five, the annunciators being above and the switches below. Between every two sets of annunciators is placed a triangular block, which is colored and numbered. The call bells, which are common to all subscribers of the same series,

has charge of the staff of operators, and an inspector has general supervision of the affairs of the office.

Important offices are provided with an instructor, whose office is to teach telephony to beginners, a special hall being provided for this use. Order and regularity rules, and mis-



SWITCH BOARDS.



WIRE CELLAR.

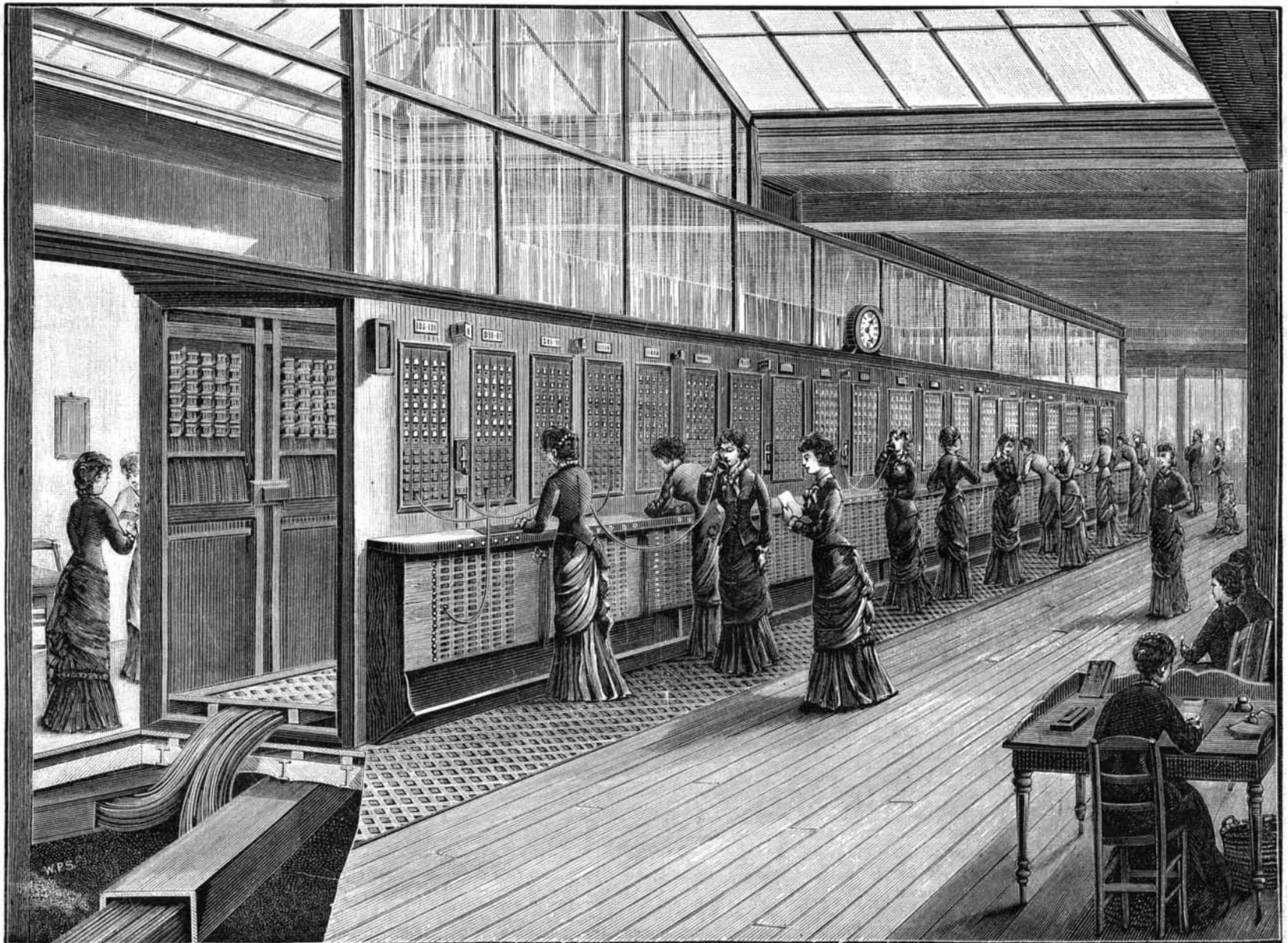
ferent from ours, and in many respects better. In the central offices the frames carrying the switches and annunciators are arranged along the walls on three sides of the room, ~~some~~ space being left behind them for manipulating the wires for inspection, etc.

are placed at the extremities of the frames, and between the sets of annunciators there are switches for connecting the employes with the subscribers.

The service is performed during the day by sixteen young ladies, and at night by a less number of men. A directress

takes and delays are generally the fault of subscribers and not of the operators.

The triangular colored and numbered blocks above referred to are for convenience in connecting one central office with another, so that the subscribers of different offices may con-



THE CENTRAL TELEPHONE EXCHANGE, PARIS.



verse as conveniently as if both were directly connected with one office.

The subscribers' wires are united into cables of fourteen wires each. They are affixed to the vault of the sewer and are consequently out of sight and out of the way.

The telephone company extends the double telephone wires from the subscriber's instrument through a hole in the sewer, and connection with the proper wires and cable is made by the agents of the administration of the telegraph.

The ends of the wires of the cables are distributed over the switch boards in the wire cellar of the central office, and upon one of these switch boards the double wire of the subscriber terminates and is readily found.

The telephone used in Paris is Adir's. Three cells of Leclanché battery are employed, one for the transmitter and two for calling. Every three months the transmitters are changed, and although they might be able to work longer, this plan is adopted to insure good service.

The Pittsburg Exposition.

The seventh annual exhibition of the Pittsburg Exposition Society will be held in the city of Allegheny, opening September 6, and closing October 13, 1883. The main building is 600 feet long by 150 feet wide, with galleries 45 feet wide, extending around the entire building.

A Fatal Earthquake.

The recent accounts of the destruction in the island of Ischia, opposite Naples, revives the old time records of the ravages of the earthquake in Portugal and other countries. A sudden shock of earthquake was felt at a little after nine o'clock, July 28, in Casamicciola, Ischia, at which hour a large portion of the people were at the theater.

The ground opened in many places, while in other places there was no movement. Water gushed out of springs. Several boilers in the bathing house burst. The theater, which is a wooden structure, was literally torn open, allowing the audience to escape.

The Brush Secondary Battery.

The patent interference case of the American Electric Storage Company of New York against Charles F. Brush of the Brush Electric Company of Cleveland, Ohio, was decided Aug. 2 by giving Brush priority of invention. The declaration in the case contained three counts, each supposed to represent a distinct invention claimed by both parties.

Two Disagreements Ended.

A strike by about 900 cloakmakers in New York city was ended August 2, after an idleness of two weeks. The terms of the agreement finally made were a guarantee of \$15 per week to each salaried employe on the basis of eleven hours per day.

On the same day the lockout of 10,000 cigarmakers was ended by mutual concessions by the strikers and the manufacturers' union, the actual terms not having been made public. This lockout lasted sixteen days.

A FRUITFUL source of damage done to boilers, and one which has ruined thousands, is the practice of blowing a boiler off and immediately refilling it with cold water, while the brickwork is red hot. The Age of Steel believes that nothing will tear a boiler to pieces quicker than this.

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NEW YORK, SATURDAY, AUGUST 11, 1883.

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Price 10 cents. For sale by all newsdealers

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THE REVIVAL OF CHERRY.

Those to whom fifty years is a memory readily recall the cherrywood tables, bureaus, drawer chests, that were then in fashion, when the more gaudy and more costly mahogany had but lately come in. It is an evidence of a return to good taste that the wood of the cherry tree is again in favor, not only as it exists in old furniture, but in its new requirements. It is largely used in cases for musical instruments—melodeons and organs—and in furniture—chairs and tables—after being "ebonized," or blackened by acids and dyes. But it is also coming again into use in its natural color. One of the finest banking houses in the Eastern States is finished entirely in cherry, and it is beautiful. The wood, filled and not varnished, has a soft glow not possessed by any other, and has none of those distortions of grain that are so unpleasant in mahogany.

The timber is chosen from the wild cherry, which in New England and the North generally does not usually grow to a girth of more than twenty inches, but in some of the Western States and in the South frequently attains a diameter of twenty-four inches. The domestic fruit cherry gives some good specimens of small timber, but as the tree is rarely sacrificed until it is past bearing and is decayed, this source of supply is precarious. Like all close grained timber, the best specimens are those which grow singly in exposed situations and not in a dense forest. The facility with which cherry can be worked makes it a favorite with the cabinet maker.

EFFECT OF ALCOHOL UPON DIGESTION.

It cannot be claimed that we have yet learned all that is to be known about our stomachs and the reactions that take place within them, notwithstanding the fact that one man, at least, lived for many years with an open window, as it were, in his stomach.

Every contribution to our knowledge of the subject based on real, first hand, experimental proof, has some value, hence we think that the recent experiments of Dr. P. J. Spenser upon the effect of wine on the medical properties of pepsine are worthy of careful and thoughtful attention, imperfect as they are.

Pepsin, also known as chimosin, is one of the active ferments of digestion. For medicinal purposes it is prepared by scraping the well washed stomach of a hog, and in this state possesses the property of dissolving a large quantity of coagulated albumen, such as the white of egg. Dr. Spenser, in his paper read before the Ohio State Pharmaceutical Association, gives the amount of white of egg (hard boiled) that will be dissolved by one grain of the pure pepsine, of different makers, when mixed with eight drops of pure concentrated hydrochloric acid in six hours. The amounts varied from 68 to 170 grains, with an average of about 80 grains.

He found that the acid alone would dissolve half as much as the acid and pepsin, or 40 grains, and that eight drops of acid and 100 c. c. of ten per cent alcohol would dissolve as much albumen as the ordinary commercial pepsine and acid would together. This would make alcohol equal to pepsine as a digestive agent for egg albumen. For raw beef the case is quite different; acid and alcohol having less power than acid alone, while acid and milk sugar dissolved as much meat as the best pepsine with acid.

It is to be regretted that alcohol was not tried in combination with pepsine.

In conclusion, Dr. Spenser states his conviction that an hour's exercise in the fresh air is equal in digestive power to any usual dose of pepsine, regardless of maker. When commercial pepsine is used it should be as fresh as possible.

H. Seeman has proved (Centralblatt fur Med. Wissensch.), that free hydrochloric exists in the stomach, although the presence of peptones prevents its detection by means of methyl violet. This is probably one reason why it has so long been an unsettled question whether it was hydrochloric or lactic acid that gave the acidity to the gastric juice.

AERIAL NAVIGATION.

A certificate of incorporation has been filed in the office of the Secretary of State of Illinois for the "Aerial Navigation Company of Chicago," the object of the incorporators being "the transportation of passengers and freight through the air." It is asserted that the machines to be manufactured by this company are a perfection of the one tested at Hartford, Conn., several years ago, which at the time attracted considerable interest. Probably this refers to several trials of a balloon made by Mr. E. F. Ritchel, of Bridgeport, Conn., who exhibited in Hartford, in June, 1878, a balloon with propelling apparatus attached by which the upward and downward movements of the balloon could be governed, and by which in calm weather its course could be directed.

The balloon was a horizontal cylinder of silk, twelve feet long and twenty-four inches diameter, capable of containing about 3,000 feet of gas. Suspended to it by cords and steel rods was a flat frame of brass pipe, pointed at each end, and having a seat for the operator. In front of the seat was a gear wheel with two cranks, connected by a vertical shaft and a horizontal shaft to two propeller wheels, one at the lower end of the vertical shaft under the frame, and the other in front of the operator, and this wheel was attached to the shaft by a universal joint so that it could be turned a distance of about thirty degrees from the shaft in a horizontal plane by the feet of the aeronaut. This wheel was the propelling power and also the steering device. The levitat-