

LARGE DYNAMO ARMATURE FOR DIRECT DRIVING.

Our engraving, for which we are indebted to *Industries*, represents a large Fritsche armature for direct driving, in which connectors are employed, and the armature strips proper are radial. The armature conductors are again connected up in series, and the method of coupling can be easily gathered from the illustration. We believe that Mr. Fritsche was the first to investigate the laws of the numbers of turns necessary to produce series winding in multipolar dynamos. The connectors in the radial armatures are of course copper, and as the iron conductors are naturally large in comparison, it is easy to fit the connectors in neatly. Messrs. Fritsch & Pischon, of Berlin, have now been manufacturing these machines for some time, and have made all sizes from 5,000 watts up to slow-speed direct-coupled dynamos giving 200 horse power each for central station work.

Veneering.

A very interesting process is the making of veneering. The logs are first steamed, then stripped of the bark and taken to the cutter. In the cutter, which resembles a large turning lathe, a long knife driven by machinery is made slowly to approach the revolving log, peeling off the veneer into long strips, the desired thickness varying from one-eighth to one-thirty-second of an inch. These strips are drawn out on a long table, cut and trimmed into the required sizes, and then are carried to the dryhouse. The veneer is dried in long racks, two strips being placed together, turned so that the frames are opposite, to allow a free circulation of air. After drying it is pressed and packed into bales.

THE JAFFA AND JERUSALEM RAILWAY.

The first railway line in Syria and Palestine, connecting Jaffa with Jerusalem, was opened on September 26, by the Governor of Jerusalem, Ibrahim Hakki Pasha, and by the Sultan's Special Envoy, Djelal Pasha, General and Aide-de-Camp of his Imperial Majesty, in presence of several distinguished officials of the Ministry of Public Works, who arrived purposely from Constantinople to witness the event, and to examine the works to see if the line were constructed in accordance with the plans and the terms of the concession. The president of the railway company and several other gentlemen and engineers arrived also from Paris for the occasion. All the inhabitants of Jerusalem and the neighboring districts gathered near the railway station; most of them were struck with amazement. A banquet was given by the railway company. The line is now open for traffic; two trains run every day from Jaffa to Jerusalem and the opposite way, passing by the towns of Ramleh and Lydda and several villages. Intending tourists may now be assured of finding comfortable accommodation on their journey to Jerusalem. Starting from Jaffa in the afternoon at two o'clock, they reach Jerusalem in

three hours and a half, arriving in the Holy City before six o'clock in the evening.

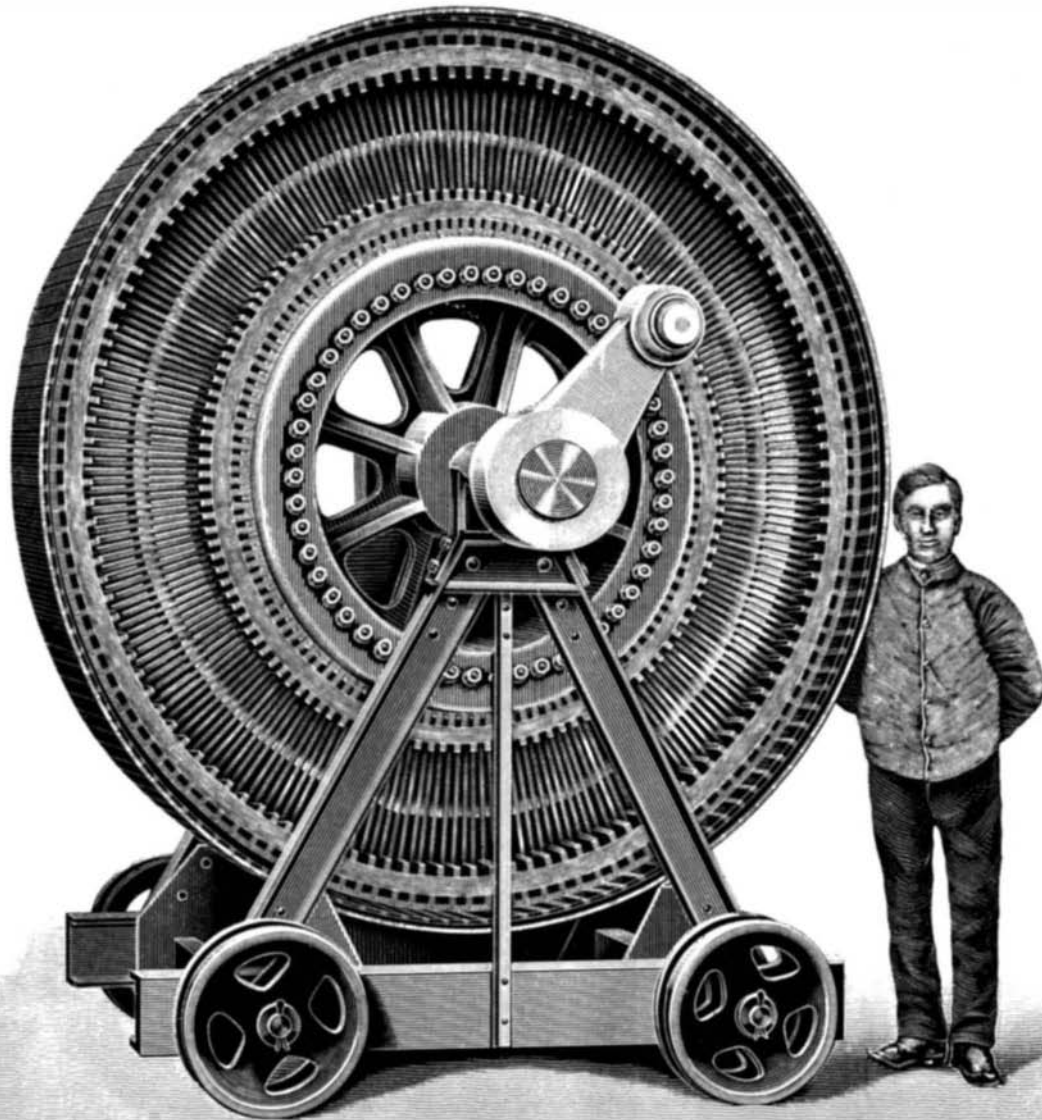
In these days we consult Baedeker, who informs us that Jaffa, pronounced Yafa, is a town with some export trade in wheat, sesame, grain, oranges, silk, and

trees. There is a Greek monastery on the quay, and a Latin hospice, founded in 1654, said to occupy the site of the house of "one Simon, a tanner"—but the Mohammedans claim this distinction for the site of a mosque near the Fanar, or lighthouse; an Armenian monastery, too, in which Napoleon, when it was a French military hospital, ordered the plague patients to be put to death by poison. At Jaffa, also, four thousand prisoners of war, by his order, were deliberately massacred. In the eighth century there was a Greek Church of St. Peter, on the supposed site of Tabitha's house. A German religious colony is settled at Saron, two miles from the town. Joppa was occupied in the twelfth century by the knights crusaders, and was the scene of conflicts between Saladin and Richard Cœur de Lion. The distance southeast to Jerusalem, by the ordinary road, is about thirty-six miles. Ramleh and Lydda were towns of much note in the times of the crusades and of the Arab rulers of Syria. The city of Jerusalem has been often described.—*Illustrated London News.*

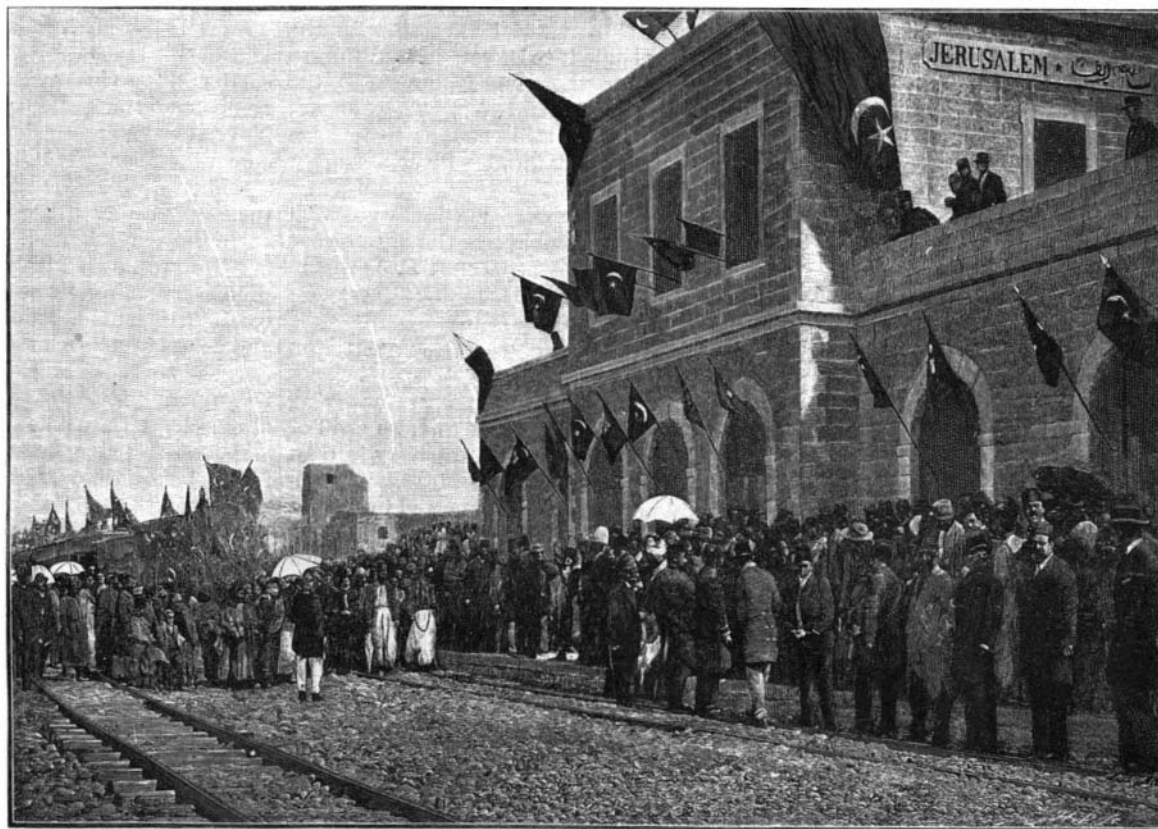
A New Color.

At a recent meeting of the chemical section of the Franklin Institute Mr. Palmer read a note on "A Lilac Color from Extract of Chestnut." In experimenting with a commercial extract of chestnut wood, with the idea of making galloflavine therefrom, an unlooked-for result was obtained. The extract was somewhat fermented; that is, a part of the tannin had been changed into gallic acid; and the design was to convert this gallic acid into galloflavine by the usual method. A solution of the 51° extract was made strongly alkaline with potash, and subjected to the action of a stream of air for about ten hours. The temperature, meantime, was kept below 50° F. At the end of the period of oxidation, the potash was neutralized with acetic acid. The solution so obtained was tested for galloflavine by working therein cotton and wool yarns with the addition of potash alum. While no yellow color was obtained, a clear, bright lilac was developed on both the animal and the vegetable fiber. The body giving this color has not yet been separated from the oxidized extract.

DR. GEORGE S. ALLEN, of New York, in the *International Dental Journal*, recommends the use of a one to one thousand solution of bichloride of mercury in rosewater, as an elegant and efficient disinfecting fluid for instruments. Contrary to the common opinion that steel instruments "suffer from the use of any solution of the bichloride, he finds that they remain perfectly unaffected after being dipped in it hundreds of times. By the use of rosewater the bug poison taste of the simple solution is entirely supplanted by an agreeable rose-flavored one. As the plain bichloride decomposes, he advises the preparation of a one per cent solution from the tartaric sublimate tablets, and the addition of 9 parts of rosewater to 1 of solution when it is wanted for the disinfection of instruments or for use in the mouth.

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soap; a landing place, of course, for thousands of Mussulmans, Jewish, and Christian pilgrims, the residence of a Turkish kaimakam subordinate to the Pasha of Jerusalem. The harbor, for small vessels only, is a basin formed by natural rocks under water and by the remains of ancient works of masonry; its northern entrance, by the mole or pier, is endangered by sandbanks, and that from the northwest is very narrow. Larger vessels and steamers anchor in the roads half a mile from the shore; passengers are landed by the boatmen. The town, built of tufa, with narrow, dusty streets, lies on a yellow beach, at the foot of a rock 116 feet high; to the north are orchards and palm

**OPENING OF THE JAFFA AND JERUSALEM RAILWAY: THE NEW STATION AT JERUSALEM.**