Science Siftings

BY 'VOLT.'

Talking Across the Country.

To keep nearly thirty thousand electrical waves a minute in perfect order on a telephone wire is one of the detailed problems that the American Telephone and Telegraph Company had to solve in establishing the long distance telephone connection between New York and San Francisco, opened by the talk between Mayor Mitchell of New York and Mayor Rolph of San Francisco. Some of the waves have one shape, some another (said General Manager Hiss). They are as different from each other as the waves of the sea. It is not the problem of defending one simple current, but as many as one hundred and twenty thousand a minute. All these minute currents, millions and millions required for a conversation, must be carried electrically over the line to San Francisco and then converted back again to sound waves, which agitate the air of the room and affect the ear as air waves.

Building a Zeppelin.

The building of a Zeppelin is not the work of a day. The mere work on a machine takes an entire year, and when that work is done another three months must be spent in testing. Stretched in a framework of girders, there are from seventeen to twenty-five balloonettes from end to end. Over these and over the girders is an outer skin of proofed canvas. Slung under the great length is a series of cabins. Right in front is the station of the look-out man, who is in charge of the starting and the landing: he has anchors slung beneath him. In the first boat, which is entirely covered in, are two petrol engines. Behind this boat is the gangway, fitted up with sleeping berths for the crew. In the centre is the observation station. It is from here that the bombs are dropped, and it is in here that the marvellous steering and sighting apparatus is installed, as well as the wireless plant.

Luxurious Military Aeroplanes.

The German arrow type of flying machine can compare with nothing so much as an automobile de luxe (says a writers in *T.P.'s Journal of the War*). It has the strength, the perfection, the reliability, the safety of a superb motor car. And it has the luxury. On the dash-board before the pilot, in addition to his control gears, there is a nest of drawers containing, amongst other things, a Thermos flash, chocolate cubes wrapped against the damp in tin-foil, a small bottle of brandy in case the aviator should become faint, a petrol sponge for wiping the goggles, a revolver holder, a despatch-case with sharpened pencils of different colors, so that the dispositions of the enemy's troops can be more adequately marked, a map board, and maps. Moreover, the exhaust pipe of the engine passes under the floor boards, so that the pilot, who must constantly keep his feet at an angle on the pedals, may have them warmed throughout the flight. The flyer, too, sits in a comfortably upholstered club-chair.

Room-paper and Light.

Some papers absorb a great deal more light than others, and therefore necessitate more gas and electricity. For example, white absorbs only thirty per-cent. of the light rays, while deep chocolate absorbs ninety-six per cent. Thus a room papered in deep chocolate would require nearly eight times as many windows and lamps to make it as light as an exactly similar room papered in white. An illuminating laboratory recently made an exhaustive test of the various wall papers commonly used in order to determine their light-absorbing qualities. This test showed the percentage of light absorbed by each color to be as follows:—White, thirty; chrome yellow, thirty-eight; orange, fifty; plain deal, fifty-five; yellow, sixty; light pink, sixty-four; emerald green, eighty-two; dark brown, eighty-seven; vermilion, blue-green, and cobalt blue, eighty-eight, and deep chocolate, ninety-six. These figures show that if a room papered with dark green be repapered with chrome yellow it will be five times as light with the same lamps and windows. In many cases house-holders pay too much for electricity and gas-lighting because their light-absorbing wall coverings destroy the light rays.

SOME LESSONS FROM BELGIUM

American travellers in Europe, observing the number of beggars in certain Catholic countries, have written or spoken as if beggary and Catholicity were inseparably allied; indeed, many of them have not hesitated to assert that the beggary was due to Catholicity. Now Belgium was (and is, despite its present unfortunate condition), a country overwhelmingly Catholic in faith (says the *Sacred Heart Review*). Before the war, out of a population of more than 7,000,000, there were only about 28,000 Protestants, and 13,000 Jews. Yet one might travel the length and breadth of Belgium without being asked for an alms. There was no mendicancy. There was a total absence of any sign of poverty.

Now, not every beggar is an impostor, but there is a strong suspicion that the energy put into 'panhandling' might be expended with more beneficent results if directed into other channels. In London every year it is calculated that some million pounds are given to undeserving beggars, but in Belgium labor was provided for people of this class, and those who would not work were taken and put into a labor area, where they were compelled to work. In this way impostors were kept off the streets.

A hardworking, hardheaded, progressive people, the Catholic people of Belgium did not attain the prosperity that blessed them, before the storm of war burst upon them, without exerting themselves. Nature was not over-kind to Belgium. An Irish writer, holding up the case of Belgium before his own countrymen as an example, said: —

'In the first place, their land, or a great portion of it, did not promise much. It was of a marshy nature, but the people with that intense love of country set to work the land itself, and step by step they wrung from an unwilling nature innumerable treasures. It was said that they reclaimed a quarter million acres of sand and marshy land and turned it into a fertile soil. It was stated by authorities on the subject that the land worth £6 an acre increased in value to £60 an acre. The condition of the people improved as time went on. In like manner they undertook what was quite new to the world, the nationalisation of their railways, and to-day Belgium owned her own railway system, the mileage of which was far greater than that of England—4000 miles of heavy railways and two or three thousand miles of light railways. The country was one ramification of railway lines. The commerce of the country developed, and the earnings on the railways were able to pay the interest on the national debt. In no country in the world could one travel with greater facility and at such a cheap rate as in Belgium. The whole railway system of the country could be travelled over by train for nine francs, or 7s 6d night and day, for a week. It could be therefore seen what an immense advantage the railway system was to the commerce of the country, and the general progress of the country was brought about by the courage of the people in facing and successfully accomplishing railway nationalisation.'

A Catholic people this—with 5419 secular priests; 6237 priests of religious Orders, dwelling in 293 religious houses; and 29,303 Brothers and nuns of various Orders; in 2207 monasteries and convents—a Catholic people living an intense religious Catholic life; and yet making their country, for its size, the most prosperous and the most progressive in the world.

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