THE EVENING NEWS.

Tuesday, . . . October 19, 1869.

THE CHANNEL RAILWAY.

J. F. Bateman, F. R. S., read a paper on "The Channel Railway," before the British Association, of the following tenor, which excited a good deal of attention: He referred at some length to the advantages which would accrue from a continuous railway communication between England and France, and to the various proposals for effecting that object by a tunnel to be driven beneath the bed of the sea; by submerged roadways and tubes; by large ferry boats carrying trains on board, and by bridges to be carried on piers formed on islands to be sunk in the straits. A ferry boat, large enough to receive a whole ordinary train on board, would be a material improvement on the present means of conveyance. Such boats cannot, however, be employed, except by the construction of special harbors on each coast. With reference to a tunnel, it has been proposed to drive one of ordinary size for a double line of railway, which shall descend by a gradient of 1 in 60 on each side of the channel, to a depth of about 270 feet below the bed of the sea. The total length of the tunnel would be 30 miles, of which 22 would be beneath the bed of the sea. A special commission, appointed by the Emperor of the French, recently reported in favor of a submarine tunnel. We propose to lay a tube of cast iron on the bottom of the sea, between coast and coast, to be commenced on one side of the channel, and to be built up within the inside of a horizontal cylinder, or bell, or chamber, which shall be constantly pushed forward as the building up of the tube proceeds. The bell or chamber within which the tube is to be constructed will be about eighty feet in length, eighteen feet internal diameter, and composed of cast iron rings eight inches thick, securely bolted together. The interior of the bell will be bored out of a true cylindrical surface, like the inside of a steam cylinder. The tube to be constructed within it will consist of cast iron plates in segments four inches in thickness, connected by flanges, bolted together inside the tube, leaving a clear diameter of thirteen feet. Surrounding this tube, and forming part of it, will be constructed annular discs or diaphragms, the outside circumference of which will accurately fit the interior of the bell. These diaphragms will be furnished with arrangements for making perfectly water-tight joints, for the purpose of excluding sea water and securing a dry chamber, within which the various operations for building up the tube, and for pressing forward the bell as each ring of the tube is added, will be performed. There will always be three, and generally four, of these water-tight joints contained within the bell. A clear space between the end of the tube, and the end or projecting part of the bell of thirty-six feet, will be left as a chamber for the various operation. Within this chamber powerful hydraulic presses, using the built and completed portion of the tube as a fulcrum well, as each ring is completed, push forward the bell to a sufficient distance to admit the addition of another ring to the tube. The bell will slide over the water-tight joints described, one of which will be left behind as the bell is projected forward, leaving three always in operation against the sea. The weight of the bell and of the machinery within it will be a little in excess of the weight of water displaced, and therefore the only resistance to be overcome by the hydraulic presses when pushing forward the bell, as the friction due to the slight difference in weight and the head or column of water pressing upon the sectional area of the bell against its forward motion. In like manner, the specific gravity of the tube will be a little in excess of the weight of water which it displaces; and in order to obtain a firm footing upon the bottom of the sea, the tube will be weighted by a lining of brick in cement, and for further protection will be tied to the ground by screw piles, which will pass through stuffing boxes in the bottom of the tube.

These piles will, during the construction of the tube within the bell chamber, be introduced in the annular space between the outside of the tube and the inside of the bell, and will be screwed into the ground as they are left behind by the progression of the bell. The hydraulic presses and the other hydraulic machinery, which will be employed for lifting and fixing the various segments of the tube, will be supplied with the power required for working them from accumulators on shore, on Sir William Armstrong's system, and the supply of fresh air required for the sustainance of the workmen employed within the bell and within the tube will be insured also by steam power on shore. As the tube is completed the rails will be laid within it for the trains of wagons to be employed in bringing up segments of the rings as they may be required for the construction of the tube, and for taking back the waste water from the hydraulic presses, or any water from leakage during the construction. The tube will be formed of rings of ten feet in length, each ring consisting of six segments all precisely alike, turned and faced at the flanges or joints, and fitted together on shore previously to being taken into the bell, so that on their arrival the segments may, with perfect certainty and precision, be attached to each other. The tube, when laid, will be secure from all dangers arising from anchors, wrecks, or submarine currents.

The building of the tube will be commenced on dry land above the level of the sea, and will be gradually submerged as the tube lengthens. The first half mile will test the feasibility of construction, for that will have to be built both above and under water. When once fairly under water, the progress should be rapid, and it is estimated that the whole undertaking may be easily completed in five years. The precise line to be taken will probably be between a point in close proximity to Dover, a point in close proximity to Cape Giznes, on the French coast, where the sea bed on this line appears to be the most uniform and level, and while free from hard rocks and broken ground, to consist of coarse sand, gravel and clay. The average depth of water is 110 feet, the maximum about 200 feet. On the line suggested the water increases in depth on both sides more rapidly than elsewhere, although in no instance will the gradient be more than about 1 in 100. The tube when completed, will occupy about sixteen feet in depth above the present bottom of the sea. Up to the point on each shore at which the depth of water above the depth of the tube would reach, say 30 feet at low water, an open pier or other protection, would have to be constructed for the purpose of pointing out its position, and of preventing vessels striking against the tube. The tube at each end would gradually emerge from the water, and on arriving above the level of the sea would be connected with the existing railway systems. The distance across the Channel on the line chosen is about 22 miles. The tube, as proposed, is large enough for the passage of carriages of the present ordinary construction, and to avoid the [objections to the use of locomotives in a tube of so great a length, it is proposed to work the traffic by pneumatic pressure. The air will be exhausted on one side of the train and forced in on the other, and so the required difference of pressure will be given for carrying the train through at any determined speed. Powerful steam engines, for exhausting and forcing the air into the tube, will be erected on shore at each end. This system of working the traffic will secure a constant supply of the purest air. By this system of working there would scarcely exist the chance of accident—no collision could take place. There would never be foul air within the tube. The pneumatic system can be as cheaply worked, and is in every way preferable to locomotive power. Combined goods and passenger trains might be sent through the tube at twenty miles an hour, with occasional express trains at thirty miles an hour. The estimated cost of the whole undertaking is £8,000,000. Mr. Chalmers estimates the total annual revenue at £1,300,000. The working expenses would be amply covered by £150,000, leaving about 14 or 15 per cent dividend.

HANDS AND FEET.—I went into a shop the other day to buy what the drapers call "gent's hose." A smiling young lady was behind the counter, and when I made an appeal to her to show me some socks, I was somewhat at a loss what course of action I ought to pursue in order to demonstrate to her the length of my foot. As I am not a burlesque writer, it was clear that I could not lay my foot on the counter and say "with all my sole;" nor could I paraphrase Dibdin's Jack Tar, when he spoke of the dancer who "so lightly handled her feet." The little woman, however, speedily removed my perplexity, though only to plunge me into another. "Will you," said she "please to double up your fist, and lay it on the counter?" I replied that I did not want gloves, but socks. "And I want to take your measure," she said. "But" I urged, "it is the measure of my foot that you require." "Yes," she replied, "and I can get it equally as well with your hand. Once around your clenched fist, at the nuckles, is the length of your foot." And she took the measure of my fist, and I took the socks on the faith of the damsel's representation; and, in due course, I found that she was quite right, and they fitted me to a nicety.—*Curiosities of Shopping.*

Special Notices.

Burnett's Cocoaine for the Hair is unequalled.—*True Flag*, Boston.

Burnett's Florimel is really a wonderful perfume.—*Hartford Courant.*

Burnett's Kalliston for the Complexion is steadily growing in the estimation of ladies as it becomes more generally used.

Burnett's Flavoring Extracts to be obtained must be demanded. Poor subterfuge flavors are plenty.

Wintcomb's Asthma Remedy.—In no case of purely Asthmatic character has it failed.

"THE E's NO SUCH WORD as FAIL!"—This is absolutely true in using *Dooley's Chemical Yeast Baking Powder*, for so perfect is the combination of the ingredients entering into its manufacture, that good biscuits, rolls, or pastry, both light and nutritious, can be made every time. It is always already, always reliable, and requires but half the quantity of those of ordinary manufacture and is, consequently, cheaper. For sale in packages to meet the wants of all, by grocers generally.

WHEN every other prescription has disappointed expectation, in cases where the system is suffering from the effects of mineral medicines, the powerful vegetable corrective—*Red Jacket Bitters*—will restore the tone of the digestive apparatus, quiet the nerves, and arrest the action of the poison upon the secretive organs and the blood.
