

THOROUGH JUNCTION LINES.—The Report of the Engineer of the St. Lawrence and Lake Huron Line has been issued. It is proposed to connect the Ogdensburgh route with Peterborough and the Georgina Bay. It has not yet been determined where the Southern Terminus shall be located, whether at Kingston or Prescott; the original proposition was to the latter town, but in view of the early constructions of the Trunk line, Kingston may it is said be selected, as saving distance and answering the whole purpose. An application is about to be made to Parliament for a Charter to construct a Junction Line between Toronto and Peterborough—and a reconnaissance has already been made of the route. Whether as a portion of a traffic line (by which it is affirmed the distance would be less than by the Lake shore) or a loop line to it, by which to connect the back Townships with Toronto and Kingston respectively, the scheme appears to be well worthy of favorable consideration.—*Id.*

THE GREAT WESTERN.—The works on this line are progressing with great rapidity. The Carriage Factories at the Hamilton Depot are nearly complete, and the car builders will be put in early possession. All the arrangements have been made with reference to Locomotive power and general rolling stock, and throughout the whole length of the line there is full evidence of the most energetic action on the part of all concerned. Engineers in connection with this Company are now engaged on a survey between Toronto and Hamilton, and a charter will probably be obtained during the present Session of Parliament authorizing its construction. In this route the two cities will be united at an early date, and (taking the whole length from the Detroit River to Toronto) a large instalment of the Trunk line will be secured.—*Id.*

THE ELECTRIC CLOCK.—Among all the wonders of that wonder-working principle, electricity, whether we view its powers in the instantaneous conveyance of information between distant places, its agency in blasting rocks in safety, the disposition of metals from their solutions, or other of its numerous appliances, there is not one of them which strikes the mind as more extraordinary or interesting than its application as a prime mover for the measurement of time. In this, however, it has now become most completely successful, and insures a correctness and regularity which cannot be obtained by other clocks, however well constructed. We believe the first idea of working clocks by electricity is due to Mr. Alexander Bain, who first commenced putting it in practice in 1838. His first attempt was to make a common clock transmit its time to other clocks at a distance, effected by the action of electro-magnets, in which he was perfectly successful. The next step was the application of the electric power to work single clocks, so that no winding might be required, and the common clock dispensed with altogether. This, in a commercial point of view, was of great importance, as such a clock, either for private houses or public buildings, could be used either singly or made the governor or parent clock to other dials in different parts of the building. The ordinary galvanic apparatus was found, however,

neither uniform or lasting, giving more trouble and expense than the common clocks; and in prosecuting his experiments, Mr. Bain, in 1842, discovered that a plate of zinc and of copper, buried in the earth, gave a uniform and continuous force of sufficient power to work clocks of any size, from the smallest mantel time-piece to large church clocks.

In the construction of an electric clock, the pendulum rod is of wood and suspended to a metal bracket, fixed to the back board. The bob of the pendulum is composed of a reel of insulated copper wire, with a brass covering to improve its appearance, forming an electro-magnet in the usual manner. The ends of the wire are carried up the rod, terminating in two suspension springs, which serve the double purpose of suspending the pendulum, and conveying the current to and from the bob. Two brass tubes contain each a bar of magnetised steel, and act as alternate attractors to the bob. There is a break on the pendulum for letting on and cutting off the current which acting on the bob, operates also on clocks at distant places. The plates of zinc and copper are buried about 4 ft. underground, and 3 ft. apart, and to them perfectly insulated copper wires are soldered. A regulating weight being attached to the pendulum to bring it to time, the apparatus is complete. For the motion on the dial plate, only two wheels and an endless screw are required, besides the minute and hour wheels; and the clock instead of moving the pendulum, being on the contrary moved by it, a much smaller degree of stress and friction is the result. The pendulum once set in motion acts on the break; and the current being, as we have shown, alternately cut off and admitted, regular motion is obtained, which will continue for many years.

In situations where it is inconvenient so obtain the electric current from the earth the voltaic is resorted to; but in almost every case the first mode has proved the easiest, as well as the most effective. The cost of its plates is a trifle, and it has been ascertained that they will retain their efficacy for years. The advantages of this application of electricity to another of our wants it is scarcely possible to estimate, as through the medium of auxiliary clocks, exact time may be kept through a whole neighborhood, or, in short, to wherever wires can be laid down. In fact it is now shown to be possible that all the principal clocks in the kingdom might be united to keep time with one governing one, without winding up or need of attendance of any kind from one year's end to another.

Mr. Bain's warehouse for these clocks is at 43, Old Bond street; and we think an inspection of them is deserving the attention of the scientific.
—*Mining Journal.*

CALORIC SHIPS.

The idea of substituting a new and superior motive-power for steam will no doubt strike many minds as extravagant, if not chimerical. We have been so accustomed to regard steam-power as the *ne plus ultra* of attainment in subjecting the modified forces of nature to the service of man, that a discovery which promises to supersede this agency will have to contend with the most formi-