

THE first lady to adopt the profession of electrical engineer is Miss Fawcett, the English lady who recently passed with such high honors at Cambridge University. Her career will be followed with interest.

So far as we know, the first application of electricity to the opening and closing of canal locks is on a Canadian canal—the Beauharnois. Experiments are now being made at the Valleyfield locks, and if they are favorably reported on, the locks on the new Canadian Sault canal will be operated by electricity.

A NEW method of mixing alloys has been introduced, which consists in pouring the molten ingredients into a vessel in small streams, and then working in the vessel a plunger having numerous small holes, the mixing metals being forced through these holes at each stroke of the plunger.

A NEW method has been devised for lighting railway tunnels. The light of many electric lamps some yards above the rails is thrown by means of reflectors against the sides of the tunnel, where it is again reflected by means of burnished tin. The current is automatically turned on and off when the trains respectively enter and leave the tunnel.

SEVERAL improvements have been made in the kryptophone, the telephonic instrument invented some years ago. An extremely sensitive receiving diaphragm is so disposed as to respond to and transmit air vibrations produced by any noise to a distant telephone, an alarm bell being provided at the receiving station to draw the attention of the attendant. When this receiving diaphragm, it is said, is immersed in water, the pulsations of a steamboat some miles distant are readily discernible.

A MACHINE for baking bricks by electricity has been invented. It consists of a table provided with iron brick moulds, joined together like pigeon-holes, to which the electric current is applied. Each mould possesses a cover so adjusted as to follow the brick as it shrinks, and to turn off the current automatically at the proper time. It is claimed that by this electric process bricks are baked harder and of better shape than by the ordinary firing operations, and that it only requires three hours and a half to carry through.

THE opening of direct steamship communication between Canada and Japan has not only proved successful in the matter of passenger traffic and general freight, but has incidentally been the means of opening up trade in several lines of Canadian manufacture, which have been profitably exported to both China and Japan. The establishment of the new line of steamers from British Columbia to Australia, ought to open up a still larger field for the export of Canadian manufactures, because for years our American neighbors have done a trade there, and the Australian colonies have been for a long time desirous of the direct steamship communication, which alone could render such a trade profitable and permanent.

THE latest addition to the equipment of some of the English police is a pocket telephone. It is said to be light and handy, and consists of a combined ear and mouthpiece. It is to be used chiefly in connection with the fire lamps placed at various intervals along the streets. Instead of breaking the pane of glass, as most people have to do in order to ring the alarm, the policeman has merely to open the door with his key, place a connecting pin into a socket provided for it, and be in direct communication with the fire brigade.

It is then easy to suggest what appliances are likely to be most useful in the case of such a conflagration as the one announced. Besides their usefulness in the event of fire, these pocket telephones may be used for other ends equally important, such as in cases of robbery or murder, when their possessors may easily signal for help, or for further instructions.

WE understand that the experiments now being made on the Beauharnois canal in opening and closing the canal locks by electricity are successful. It is altogether probable, therefore, that the new system of electrically opening and closing locks will be applied on the other Canadian canals at an early date.

THOS. A. EDISON has patented a method of obtaining a new mechanical movement by the aid of magnetism, and by which it is possible to transmit large powers at high velocities without the excessive noise incident to the use of toothed gearing. This is done by employing smooth-faced iron pulleys or wheels, which are made strongly magnetic by suitable windings connected in circuit with some source of electric energy. There are also endless belts, ropes, and chains, which are either magnetic themselves or carry iron bars forming armatures to close the magnetic circles at the pulleys. These endless belts are attracted strongly to the faces of the pulleys so as to increase the adhesion and to transmit the power without slip.

THE Tanssig system of smelting and casting metals in exhausted chambers is claimed to produce by each process and within fifteen minutes, 1,000 cwt. of finished cast metal, bronze iron, steel, copper, brass, zinc, platinum, gold, or silver. The process is effected by means of flat-shaped metal electroids in an exhausted furnace, large moulds being set up outside the furnace, and exhausted by one process simultaneously with the exhaustion of the furnace. The electric current acts by conduction through the metal which is to be melted. By this process all contamination of the metal by carbon is avoided. As coal slack is practically absent, there is hardly any refuse; nor is there any oxidation or formation of air bubbles. As the casting forms are without air, a wonderfully fine and close casting is possible even in objects of delicate shape or very small diameter. It is said that on this system the consumption of coal is reduced 50 per cent.

THE cry of tariff reform seems to be borne on every passing breeze in Canada just now, and it is plain that if the party in power do not do something to level down the mountains and fill up the valleys of our incongruous Customs, the party that is out of power will be called in to do it. The mission of THE CANADIAN ENGINEER is not political, but purely industrial. If it touches on the political aspect of industrial questions it will only be for the purpose of casting back upon the tide of fair competition those industries which have become inflated by extravagant duties into mere monopolistic schemes; or, on the other hand, of defending and supporting those manufacturers who, because they command no votes or have no "pull" with the Government, are left with but a nominal protection, or else actually handicapped in their relation to the hand-fed industries that have the pull. In other words we speak for fair play all round, which does not exist now; but, as the Government has promised to make a general readjustment, and is gathering information with that in view, it may, perhaps, be well to wait and see what will be done. Such is the opinion of THE CANADIAN ENGINEER.