in number, are completely enclosed in housing of steel construction. These, together with a Sly cinder mill and several emery wheels are driven by a 30-h.p. Sturtevant motor. A temporary air compressor located in one corner and driven by a Sturtevant motor, supplies air at 100 lbs. pressure to chippers, stokers, hoists etc., employed in connection with this work. The light and ventilation of this room are noticeably good.

Adjacent to the cleaning room is the pickle room; the floors are both of concrete. The pickle beds are of the teeter board construction, so designed that the acid may be drained back into the vats and the board subsequently teetered over for washing into the trench upon the other side of the room. The floor slopes so as to give perfect drainage. A pneumatic travelling crane serves this room.

One of the noticeable features of the equipment of this plant is to be found in the sanitary arrangements. The foundry has a large locker and wash room. Expanded metal lockers to the number of 225 are already in position. Enamelled iron sinks, six in number, are served with tempered water and are generously patronized by the employees. A series of slate partitioned shower baths has proved to be very acceptable during the past summer. The floor of this room is of tar concrete, the upper ceilings, which are white and fresh, are in pleasing contrast with the steel work and base of the walls which are finished in dark green. Within the same room is installed the time-recording system so placed that a double line of men pass, one upon either side of the board, as they go and come from the room. The foundry foreman has not been forgotten in the matter of convenience, and he, with his assistants, is provided with an attractive office, well lighted and susceptible of thorough ventilation from out of doors.

Naturally, the entire plant is heated and ventilated by the Sturtevant system. In the case of the pattern building, the apparatus consisting of an engine driven fan and steel pipe heater is placed close to the division wall and delivers the heated air into a vertical flue and thence to the various rooms. The foundry apparatus is located overhead in the end of one of the craneways and arranged to take fresh air from out of doors or return from the building and reheat it. Distribution of air is made through a system of overhead galvanized iron piping, discharging downward to the floor. Both apparatus utilize exhaust steam. A complete underground tunnel system is provided for distribution of steam, electricity, compressed air, etc., and return of condensation.

USE AND PRODUCTION OF ASBESTOS.

The order of the insurance commissioners that all wires in New York's new subway shall be insulated with asbestos, and that the roofs and floors of all subway cars shall be protected with asbestos mill board, calls attention to the valuable qualities of that mineral. It is only a little over a quarter of a century since the discovery of asbestos. It is the only fireproof fibre in the world. To look at some of the beautiful articles woven from it, we can hardly conceive that asbestos is a mineral, and in its native state looks just like any ordinary rock to the untrained eye. An asbestos mine is, indeed, in simplest expression, merely a rock quarry. But from this stone it is possible to manufacture a suit of clothes. The strongest statement that can be made about asbestos is, it positively cannot be burned. Formerly it was chiefly used as a covering for superheated pipes. Its usefulness is spreading daily. It is made into theatre curtains and stage appliances, table cloths, wall paper, lining for safes and so on. Ground, it is manufactured with coloring matter, into fireproof paint and into a cement tiling for floors of sky scrapers. So far, Canada furnishes nearly all the asbestos of the world, though several mines are being developed in the United States. The Canadian mines are in Ontario and Quebec. The amount of Canada's output in 1902 was 40,416 tons, which includes 10,197 tons of asbestic. Two-thirds of this went to the United States. The milling process, whereby the fibre is released from the stone, is secret. It is done at the mines. The imported product is manufactured at New York, Erie, Chicago, Cincinnati, Boston and Philadelphia; also at Consul, Dover, Ohio, where a new plant has been established for the production of a new article from asbestos—sad irons.

In 1902 the United States furnished 1,010, and Italy and Russia 2,000 tons of asbestos. The brittle hornblende asbestos is chiefly used where resistance to heat and acids is demanded, but for spinning, only the highly elastic fibres of serpentine or chrysotile asbestos are suitable. The elasticity of asbestos fibres appears to diminish with their content of water; consequently fibres that have been subjected to high temperatures by reason of forest fires are brittle. In Canada the kinds of asbestos found, on the one hand, at Templeton, and on the other at Thetford and Black Lake, are geologically different. In the former the serpentine appears in crystalline limestone stratified with gneiss, as long bands without sharp edges, or in ellipsoidal forms. The asbestos runs through the serpentine, parallel to the edges of the latter, in veins from 4 to 40 mm. thick, and, at the most 3 m. long. The occurrence of serpentine in this district is not, however, sufficiently uniform or regular to allow of profitable mining, although the asbestos is of excellent quality. Of more commercial importance are the deposits at Thetford and Black Lake, between Sherbrooke and Quebec. Here the serpentine is associated with Canadian schist, conglomerate and quartzitic sandstone. It contains nodules and masses of steatite and chrome-ironstone, and also, though not invariably, veins of asbestos from 5 to 80 mm. thick and up to 20 m. long. The asbestos is silky and very elastic, but is frequently torn and disintegrated by fissures and clefts. The mining is mostly carried on in open workings. The better kinds of asbestos are sorted by hand, and are divided into the classes: Crude 1—with fibres over 30 mm. long, and crude 2—with fibres from 6 to 30 mm. long. In the mechanical process of preparation, the fibres are frequently disintegrated, the product is separated into two classes, viz.: Fibre—that with the long fibres, and paper stock—with the shorter ones. Asbestic, which is used for fireproof buildings, is produced by twice pulverizing and then mixing with some serpentine. The cost of production amounts to about $131 per ton for crude, and about $17 for mechanically prepared asbestos. The selling price is $2 to $3 per ton for asbestic; $20 to $28 for paper stock; $30 to $60 for fibre; $100 to $128 for crude 2, and $180 to $200 per ton for crude 1. There are twelve companies engaged in the production of asbestos, with a total capital of $4,000,000, and employing 3,000 hands.

METRIC VS. ENGLISH MEASURES,

Editor Canadian Engineer:

Sir,—Beautiful as is the French system of weights and measures, where the primary unit is the ten millionth part of a quadrant of one of the earth's great circles passing through the opposite poles; this unit, divided into tenths, hundredths, thousandths, giving rise to measures of capacity: the litre, which is a cubic decimeter; the gramme, which is the weight at a given temperature of a cubic centimeter of distilled water; and these, when successively multiplied by ten, affording the dekameter, hektometer, kilometer and myriameter—the deka-hekto-kilo-myria-liter—the deka-hekto-kilo and myria-gram; while in successfully dividing by ten we get the same names with the prefixes deci, centi, milli, indicative of quantities successively ten, ten and ten times smaller, the system, in a word, being one harmonious whole—beautiful, I say, though it be; as beautiful is also the language of the nation from which the system originates, yet it is not the simplest, easiest, or quickest mode of quantitative expression, any more than is the language as expressive as the English for commercial intercourse. An important advantage claimed for it is that, as with dollars and cents, you operate the reduction of its figures from a lower to a higher denomination, or the contrary, by the mere shifting of the decimal point to the right or left; but with the metric system, though this be true of weights, nevertheless when square and cubic measure has to be dealt with, the decimal point has to be shifted to the right