

(or which from their primary horizontal position had been tilted up by seismic action, so that they actually leaned backwards), apart, when in the course of years, or may be centuries, the foliations or separate layers opened out at top until the portion of the rock that fell over projected, before the thing occurred, not less than 6 ft. beyond the vertical, or overhung the ground beneath by that number of feet. The push forward which the fallen cliff experienced at the moment it fell was but one of 6 inches or less, due to hydrostatic pressure by the water in a crevice at a distance of some 80 feet from the portion which was by that in rear of it pushed forward, and the debris from a height of cliff of say 100 ft. was only projected, and that, down hill or to the level of the wharves, some 40 ft. below, to a horizontal distance of not over 250 ft.

Therefore again I say that if the sketch you give of the general features of the occurrence be reliable, some additional force of an explosive nature must have been at hand to thrust the debris to the distance shown in the engraving. If at any time some precise data are offered of how the cliff behaved, a vertical cross section, for instance, of the slide or fall or avalanche to scale and showing thickness of deposit along the route, be forthcoming, I hope you will reproduce the same in your ever increasingly interesting and instructive journal, for, as says my paper on "The Instructiveness of Failure," nothing in view of explaining future happenings of the kind, and, if possible, of guarding against them, can be so pertinent as when the exact cause of failure is made known; and only by failure are we really made wise, for if a structure holds its own, it only teaches that it is strong enough to do so, while its weakest part may be many times stronger and more costly than it need be.

C. BAILLARGE, C.E.

Quebec, June, 1903.

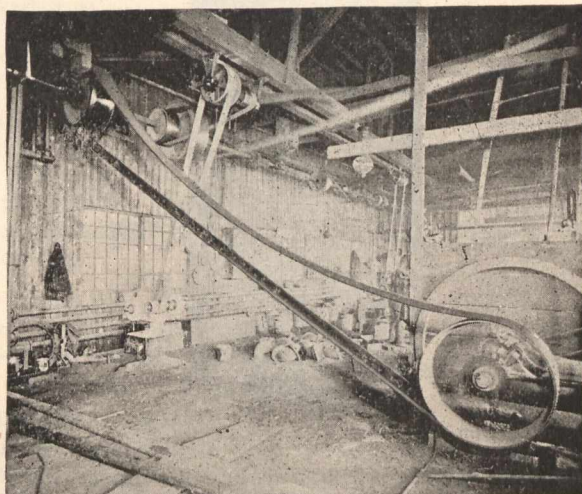
#### DOUBLE TESTS FOR GAS METER.

The Ironmonger tells of a double test applied to all gas-meters supplied by the corporation in Manchester. This double test was commenced on July 1st, 1902, and has since been continued. As showing how readily consumers may be robbed by meters, certified as correct, the report prepared by a committee of the Manchester City Justices states that two such meters were found, when submitted to the index test, to register 50 feet of error for every 100 feet of gas consumed. It is high time that this double or supplementary test were made compulsory, says the Ironmonger, as there can be little doubt that unfair registration is often made by the meters supplied by gas companies.

#### THE NEW BELT KNOWLEDGE.

One of the first principles governing the use of belts for transmission of power has been that a belt must be run tight to transmit its load. It was self-evident and the evils that were bound to attend this rule must be put up with. What were the evils? They were friction evils—losses. No belt can be run under high tension without producing high friction in the bearings, and this tension gradually pulls the fibres of which the belt is composed further and further apart without giving them a chance to get back. This inevitably pulls all elasticity out of the belt—kills it. Then this tension must be borne by the shafting, with the result that it gradually creeps out of line—even breaks, and the tension on the belt at the machine plus the tension of every belt from the engine to the machine has to be overcome and carried by the engine, and all beside and in addition to, the regular working load of the plant, which requires much more coal than would the working load alone. This never ends, it is a daily trial and expense. What is the alternative? An article has been steadily advancing in use in Canada called Cling-Surface. It is described as two things in one—a food for belts and a preventer of slipping. Belts need food to work. They need a preservative oil to keep them pliable, elastic and to prevent cracking, in short to put off the premature age which hard work brings to belts as to men. This Cling-Surface does by penetrating among the fibres and

keeping each one surrounded with this needed food. It does not stay on the surface like belt dressings do, but as it penetrates it leaves the surface clinging. This surface is clean, no deposit on the belt, and not sticky. There is no sticking of the belt to the pulley, but the belt grips the pulley with a slipless grip and then leaves it as easily as your hand leaves a tool handle. The result is that, slipping is prevented and the belt pliable, that wasteful tension is not needed, and the belt can pull its full load running easy or slack. That cuts off at a blow all those expenses and losses attending



the old tight belt method. And more, because the belts have a greater wrap on the pulleys when slack, and as the more wrap the more power there is transmitted, the New Belt Knowledge and new law appears; more power comes out of an easy belt than the same belt tight can deliver. Cling-Surface has had about seven years' hard testing in Canada, and has been endorsed by some of our largest concerns. It is made by the Cling-Surface Mfg., Co., Buffalo, N. Y., and they have much interesting matter to send enquirers.

#### A WONDERFUL CLOCK.

The machinery and hands for the greatest clock in the world, the dial of which will be 120 feet in diameter, is being built at Milwaukee for the Louisiana Purchase Exposition next year. The dial is to be a brilliant bed of flowers. The clock will be placed on the side of a hill north of the agricultural building. The minute hand will be sixty feet long, and the ring at the end, which will be fastened to the machinery, will be eight feet in diameter. The minute hand will move five feet every minute. The numerals marking the various hours will be fifteen feet in length and made of bright colors. In a broad circle surrounding the dial will be twelve flower beds, one opposite each hour, each two feet wide and fifteen feet long. At night the time piece will be illuminated with two thousand incandescent lights.

#### CONCRETE TILE FOR ROAD MAKING.

Among the uses to which concrete is now applied is the manufacture of tile to take the place of timber in culverts on roads, or for farm purposes. The Sawyer & Massey Co., Hamilton, have added to the machinery they supply, steel moulds for the manufacture of concrete tile, which have the hearty endorsement of A. W. Campbell, Commissioner of Highways for Ontario; Warden Bradley, president of the Eastern Ontario Good Roads Association, and others. Moulds for making concrete pipes are durable, simple in construction, easy to operate and require no repairs. They consist of an outer mould, two and a half feet long, and an inner collapsible core. The space between, which holds the concrete, is two inches in the smaller size up to three inches in the larger. A cast iron ring grooved to fit the mould is set on a solid plank. Into the space between the mould and core the concrete composed of three parts of fine gravel and sand, but free from dirt and loam, and one part of good cement, is rammed in solid. An iron ring of the same nature as the bottom shapes the top. This device makes a good