with the idea to give our readers a little information regarding a law which is as remarkable as it is important.

## THE VANCOUVER POWER COMPANY'S INSTALLATION.

**W** E publish this month an interesting description of the installation by the Vancouver Power Company of the new transmission plant at Coquitlam. That, in the opinion of the first engineering authorities of America the conditions are sufficiently favourable to admit of the undertaking\_proving profit-earning from the start, unmistakably attests to the rapid industrial growth of Vancouver in recent years, and it is not too much to predict that with the present rate of progress in this regard, at no very distant date, the Power Company will find no difficulty in disposing of full thirty thousand horse-power, which is the limit of development at present contemplated. From an engineering point of view the undertaking per se is not of an unusual character for there are several transmission plants on the Pacific Coast more notable in respect to size and distance of transmission. But the installation is nevertheless remarkable in that the adopted standards of engineering practice have been departed from in more than one important regard, with a view to affording both economy and increased efficiency of operation. The first of these innovations is the junction of Trout and Coquitlam Lakes by means of a tunnel two and a half miles long through a mountain four thousand feet high in order to use the lakes conjointly and to discharge the larger one through the smaller. In criticizing this plan our contemporary, the Electrical World and Engineer, suggests that ordinary sound practice would dictate merely the electrical union of the powers. That, naturally, would appear to be the obvious mode of procedure under ordinary circumstances. But the circumstances are not ordinary. In the establishment of a power plant the first requisite is that the service should be uninterruptedly continuous. This could not have been assured had ordinary methods as suggested been followed, for the reason that the hillside round which it would have been necessary to flume is composed of loose, constantly sliding rock, nor are the topographical features of the country favourable to the latter plan. The tunnel, on the other hand, although an expensive item in the first instance, insures absolute continuity of service, while the subsequent cost of maintenance will be practically nil. As an additional prevention to guard against interruption of service, it may here be added, that two independent transmission lines, each consisting of two 3-wire circuits are being provided.

Meanwhile it has also been suggested that save under severe compulsion the crossing of navigable waters by a cable span is not advisable. But we fail to quite follow this contention. At many mines in the Province we have aerial rope-ways having spans as great as that contemplated in this case and also equal to the duty of carrying loaded buckets of ore, but the Van-

couver Power Company's cable is required to support only its own weight, and is elevated at such a height above the water as not to interfere in any way with navigation. A further interesting feature of this plant is the combination of needle valve and deflecting nozzle in the regulation of the water wheels, for the introduction of which credit is due to the engineer of the B. C. Electric Railway Company. This clever idea was first practically applied in connection with the Goldstream power plant, and has given the most satisfactory results in the conservation of economy in respect to increased hydraulic efficiency needed. From tests made by Goldstream by means of a weir in the tailrace, with a view to determining the actual all-day hydraulic efficiency of the plant, it was found that the saving of water amounted to twenty per cent. In the descriptive article published elsewhere in this issue reference is made to several other matters of interest, which renders their further discussion here therefore unnecessary, but it may be pointed out that the installation of the transformers, high-voltage switches and lightning arresters in a separate building from the generators, and the substitution of the rather dangerous oil for air-blast transformers, serves to minimize the risk of loss by fire. The plant, it is expected, will be in operation by December of this year, sufficient power being then available for present needs; but the completion of the tunnel and the consequent full development of the Coquitlam water power can hardly take place under two years' time.

In conclusion we desire to congratulate the Vancouver Power Company on the promising nature of its enterprise, and furthermore on the fact that the practical working out of the scheme is in such capable hands.

## THE CAMERA AS AN AID TO THE GEOLO-GIST AND ENGINEER.

N a recent issue of the Amateur Photographer (London) Mr. G. C. Lewis writes interestingly on the aid photography affords to the geologist. Within the last few years, he informs us, a committee of the British Association has been collecting geological photographs of typical rock exposures, and a fine collection of these now lies at the Geological Museum in Jermyn Street, London, where they may be consulted at any time. In our own country the Canadian Geological Survey has also recognized the advantage of obtaining protographic records in the field, and the reports thus illustrated have in consequence gained much in value and interest. Mining and civil engineers too are beginning to appreciate what valuable assistance the camera is capable of giving them in their work. If, for example, a report is to be made of a mine for a prospective purchaser, what a deal of explanation and description may be avoided, and the facts so much more clearly brought home, by a set of photographs showing, we shall say, the topography of the country, the exact situation of the mine, possible mill or smelter sites, ore exposures, the trend of the vein, flashlights of underground workings and of the

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