

ever, are likely to be removed at least as rapidly as the foreign market is opened to its fullest capacity. The North American continent does not as yet fully recognize its destiny as arbiter of the future commercial life to which the myriads of population, and countless agencies of production lying dormant in the Orient must awaken. But the day will come when the ports on the Pacific Coast are not only engaged in a great trade in the export of all classes of manufactures, but form a reservoir into which the untold wealth of Oriental nations is poured, then to be manufactured and transferred and adopted to the needs of a great and rich population extending from the Pacific to the Atlantic shore, to the refinement of whose mode of living the world is laid under tribute. Then, indeed, will great cities, rich, crowded, laughing with the spoil of continents, be built up upon the North American shores of the Pacific Ocean, cities resounding to the hum of commerce, of manufactures, and of ship-building, and forming the ganglia of the commercial nerve-system of the world. Here, indeed, will the impulse of Western civilization be realized in its most glorious, perhaps its final, consummation. Here, in this Imperial situation, holding in one hand the keys of all Europe and America, and with the other embracing the commercial destinies of all Asia and Oceania, Western civilization, in its peculiar industrial features, will attain a magnitude and a character of demarcation superior to every phase of it that has gone before, as each of these has been superior to precedent variations." We can only express the hope that Mr. Bogle may live long enough to see his magnificent predictions verified, and that his faith may be rewarded by a proportionate share of that wealth and prosperity which in the fulfillment of her destiny, "The Coming Industrial Empire of Puget Sound" is to enjoy.

#### SCHOOL OF MINES QUARTERLY.

The last number of this magazine contains several valuable papers, including "Electrochemistry and Electrometallurgy," by F. B. Crocker; "The Analysis of Slags and Cinders," by Cavalier H. Jonet; "Notes on the Assay of the Zinc Precipitates Obtained in the Cyanide Process," by C. H. Fulton and C. H. Crawford, and "A Method of Cyclic Analysis of Heat Engines," by Charles E. Lucke.

#### RAILWAY AND ENGINEERING REVIEW.

The "Special Maintenance of Way Issue" of this periodical, which appeared on March 16th, is a very handsome, well illustrated number of over two hundred pages, much space being devoted to the reports of the committee of the American Railway Engineering and Maintenance of Way Association on bridges and trestles, highway crossings, rails, and other subjects of interest to railroad engineers. Among miscellaneous articles is a paper on "Switchback" cantilever bridge to span over a canyon two miles south of the summit of White Pass, on the White Pass & Yukon Railway. To construct an ordinary bridge under the difficulties encountered would have seriously delayed the work of extending the road. As an alternative, therefore, a switchback was run 2,200 feet beyond the site of the proposed bridge, returning on the opposite side of the canyon at such an elevation as would permit the construction of a bridge on a grade which would not be prohibitive. The width of the canyon beyond the site of the proposed bridge is too narrow to make room for a curve, and therefore the only scheme for returning out of the canyon, on the opposite side, was by means of a switchback.

"In operating trains over this switchback it has been necessary to break the train at the end of the switchback and turn the engines, for which purpose a turntable had been installed on the north side of the switchback. The switchback was otherwise bothersome through inability to operate the rotary snow plow around the same, resulting in an annual expense of about \$20,000 for shovelling snow, notwithstanding that a snow shed of considerable length had been erected near the end of the switchback. Aside from these matters of maintenance expense there was a delay of about a half hour to every train in turning the engines and breaking the train to get the engines to the head end after passing the switchback. The cantilever bridge which has been built at this point is a structure of considerable interest. The clear span of the bridge is 240 feet, and the length of the cantilever structure is 400 feet. There is a wooden trestle approach at either end of the cantilever, making the total length of the bridge 850 feet. At the centre the bridge stands 275 feet above the canyon. One of the principal difficulties experienced in the work of construction was the building of the foundation piers, which are of concrete. These piers had to be built on the steep sides of the canyon, and in digging for the foundations large quantities of ice were struck in the crevices of the rocks, which had to be removed.

#### MINES AND MINERALS.

In Mines and Minerals for March an exceptionally able

article is contributed by Mr. R. B. Brinsmade, B. S., E. M., entitled, "Mining Practice at Rossland." The writer describes the methods of diamond drilling, shaft sinking, drifting, raising, blasting, tramping, hoisting, ventilation, lighting, pumping, air compression, etc. employed, and also refers to working costs and the labor conditions in this district. Space forbids a review of the article this month, but we hope at an early date to reproduce extracts from it in the next issue of the Mining Record.

#### TRADE NOTICES.

**T**HE Hendrie & Bolthoff Manufacturing & Supply Co., of Denver, Colorado, announce that while one of their warehouses was recently destroyed by fire, the five remaining warehouses, full of material, were unharmed, and that fifty cars laden with machinery and supplies from their works are now on the road, while other consignments will immediately follow.

The A. Van der Naillen School of Engineering, San Francisco, request us to state that the school, the attendance to which is largely on the increase, has been moved to the company's own three-story building, No. 113 Fulton Street.

Mr. A. G. MacDonald, late of the Royal Electric Company's engineering and sales department, has been appointed to represent the Fairbanks' Company, of Montreal, in British Columbia.

We are in receipt of catalogue No. 13, describing the Jackson hand power rock drill and equipment, manufactured by the sole licensee, Mr. H. D. Crippen, 52 Broadway, New York, and Denver, Colorado. This catalogue is well illustrated, showing the drill mounted at different angles, and adjusted for either sinking, tunnelling or quarrying. The Jackson hand-power rock drill is the result of many years' experimenting by the inventor who has had over twenty years' experience as a miner and mine operator. It is so simple that it can be operated by a person without previous experience in rock drilling or with mechanical devices of any nature, and can be set up for work and operated by one man, though two can work it with proportionate increased efficiency. The drill consists of two principal parts, the carriage and body, which can be instantly separated and readjusted. The total weight of the machine being less than 140 pounds, the parts can be readily transported over rough or mountainous country by mule or man pack. This drill has been on the market four years. It is not an adaptation or change from any of the old forms of hand power drills, its principle and mechanism being entirely new. It is extensively used in the United States and in foreign countries, and is giving universal satisfaction, as evidenced by the many testimonials received and printed in the catalogue. When width of workings is five feet or more, two drills may be operated at the same time to good advantage. The manufacturer, furthermore, guarantees to replace all broken parts within two years from date of sale, free of charge.

The annual meeting of the Canadian General Electric Company was held in Toronto this month. The report showed that the net profits on operating accounts had been \$262,003, and the premium on the new stock \$75,000. These items, with the \$58,437 balance from last year, make a total of \$396,340. The dividends, 10 per cent. on the common stock, and 6 per cent. on the preferred stock, absorbed \$127,623; \$125,000 has been added to reserve, making that fund now \$265,000, and a further sum of \$12,601 was placed at the credit of profit and loss. Directors were re-elected as follows: W. R. Brock, president; H. P. Dwight, first vice-president; Frederick Nicholls, second vice-president and managing director. The company's business is large and active.

Messrs. Pellet-Harvey, Bryant & Gilman, the well known metallurgist firm of Vancouver, have been appointed provincial agents of the Smelting Corporation, of England, which operates large reduction works on the Manchester Ship Canal at Ellesmere Port. The corporation purchases zinc-lead ores in all quantities, a fact which is of substantial interest to those who have refractory silver-lead ores, containing much zinc. Messrs. Pellet-Harvey & Co. have already sent a purchasing agent to visit West Kootenay, in order to make contracts for their English principals.

Mr. Charles H. Unverzagt, formerly president of the Hooper Pneumatic Milling Co., 517 W. 30th street, New York City, engaged in the business of milling and the concentration of ores without the use of water, has sold out a 51 per cent. interest in said company for a large figure with a special reservation of a number of machines for his own use, and proposes to shortly remove West. The reservation of machines will require \$1,000,000 to capitalize the same for use in milling plants and a company for which purpose will be formed by Mr. Unverzagt in the fall, after he has given attention to certain mining interests which he is developing. We understand that there are a number of capitalists ready to go in on the matter. The successors to Mr. Unverzagt propose developing the Hooper pneumatic milling system for the dry concentration of ores on a large scale, not only in its sale and introduction, but, also in its use in personal mining operations of the syndicate. The Hooper Pneumatic Company have recently closed a con-