Fig. 6, nor have the general advantages it offers for opening up the natural resources of the great North-west; even if the scheme has been mentioned at all. This route is the proposed railroad connection over Behring Strait to Asia, which is destined for realization in the not very distant future

That the Canadian Pacific Railroad was made as nearly as practicable to follow the geographical degree of altitude, in order to reach the western ocean by the shortest possible route, was but natural; yet that this great line should now be paralleled by another line whose only purpose is to open the country for cultivation seems to be a mistake. Not because there is no need of a railroad at the contemplated location, for much water will run into the sea before the railroad net of the North-West is in danger of being too closely meshed; yet it is of purely domestic importance. Port Simpson-its intended Western terminus-has advantages in regard to location on the high-way to Asia, yet it will never be able to compete with the posts at Vancouver for any transit traffic; because transportation by water is cheaper than by rail. When this scheme is carried through, its realization will, to a large extent, be due to the before mentioned public sentiment favoring the following of the line of altitudes, and not to a rational desire of hitting the direct line concerned in the opening of the country to international transportation, or in following the physical configuration of the country, or the isothermes governing the forward march of agriculture.

The straight line from Winnipeg to Dawson City, which is the main part of the line from Behring Strait to the railroad centre of the continent, is, as will be seen in Fig. 6, the real axis of the vast territory now awaiting the dawn of civilization. It skirts the chains of great lakes, which, "belted" by most delightful country: forest lands, rich in game, magnificent mountain scenery; and landscapes of surpassing beauty-a permanent sportsman's paradise; beginning where agriculture ceases, and extending miles northward of this line. There can be no doubt that when Canada's northwestern railroad system is completed, this direct Behring Strait line will then be the trunk of the whole system; second not even to the C. P. R., for it will have an ever increasing international value. The comparative advantage of this line will best be understood by contrasting it with the Canadian Pacific Railway. The value of this old transcontinental route consists largely in its nationality. The universal transportation could have been served almost as well by the still older routes south of the boundary; while no such qualifications could be made with regard to the proposed Behring Strait route, since it would be a direct line by rail between the centres of America and Asia (China, India!) and even of Europe.

A line from Winnipeg to Hazleton, B. C., and thence to Dawson City-which is named as a prospective connection between the two points-will serve domestic purposes as long as no shorter route can be had, but it will be of little international advantage, inasmuch as it will lead the traffic over the Vancouver and Puget Sound region, instead of directly through the traffic's pulsating heart in the centre of the continent. As a promoter of Canada's interests; as opener of the North-West for cultivation; as a lever for raising the value of the soil, and as an inducement to settlers; this proposed direct trunk line will manifestly surpass anything done so far. It will enormously increase the value in the popular estimation-of the vast triangular territory lying between this line, viz.: the C. P. R. and Pacific shore, or western boundary. It would achieve by one step, one stroke, what otherwise might require the work of generations to accomplish in the usual creeping way, by gradual extensions of the means of communications into the wilderness. It would cut the "Gordian knot" of Canada's transportation problem. Furthermore, it is reasonably certain that Canada's adoption of this line as a fitting national task, would directly react on the U. S. Government, who would, as a matter of course, set about outdoing its past by laying down a line from the Alaskan boundary to Nome. The importance of this dominant line is too obvious to brook delay for petty reasons of jealousy. The connection then, under or above the Behring

Strait, and along the eastern shore of Siberia, to the marts of Asia, would no longer appear problematical; but be realized purely as a matter of business:—*C'est le premier pas qui cout.* It is in the power of the Dominion to take the first step.

The eastern part of the proposed transcontinental linefrom Winnipeg to the Atlantic coast—is considered a proper national task, and should be built by the Canadian Government. Why not take up the whole problem, and run the line through from Belle Isle to Dawson City? Build slow or quick as the means may allow, but by all means adopt the plan, and let the nations know that the Dominion of Canada is proudly conscious of her favored location on the world's highway of commerce, and is willing to take the responsibility thereof.

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COMPARATIVE VALUE OF BELT DRESSINGS.

An interesting series of comparative tests has been made on the belt-testing machine of Sibley College, Cornell University, to prove the difference between, and comparative value of, Cling-Surface, neatsfoot oil, and two belt dressings; one in a semi-liquid form, designated here as "Z," and one in a solid form, designated here as "X." The four materials were subjected to a chemical test, to ascertain the presence of resin, free alkali, ammonia, mineral and fatty acids. None of the first three were found in any of the materials. Dressing "Z" contained some free mineral acid. The amount of free fatty acid was as follows:—

Cling-Surface, .027 of I per cent. Neatsfoot oil, .070 of I per cent. Dressing "X", 3.5 per cent. Dressing "Z", 29.85 per cent.

In making the test four new 4" single-ply belts were used, each being dressed with one of the four dressings. The



engine used had a limit of 40 R.P.M. per minute, the load being applied by means of a pony brake. As will be seen from the chart, the test proved conclusively that it is perfectly feasible to run belts loose, which means increased life for the belt, no slip, no burning of the belt, less wear in journals, less lubrication, less straining of shafting and pulleys, and more available power, few or no stoppages for repairs, and loss in time and product.

The Effect of Preparations Applied to Belts is the title of a complete and comprehensive treatise on this subject, which can be had by writing the Cling-Surface Company, Buffalo, N.Y., U.S.A.

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ELECTRIC LIGHT.

An incandescent lamp of 16-candle power takes .5 ampere at 100 volts potential. It, therefore, requires $3\frac{1}{2}$ to 4 watts per candle. One Board of Trade unit will keep the lamp burning for sixteen hours. One indicated horse-power will run eight lamps. Incandescent lamps are usually run in parallel. The average life is about 1,000 hours.