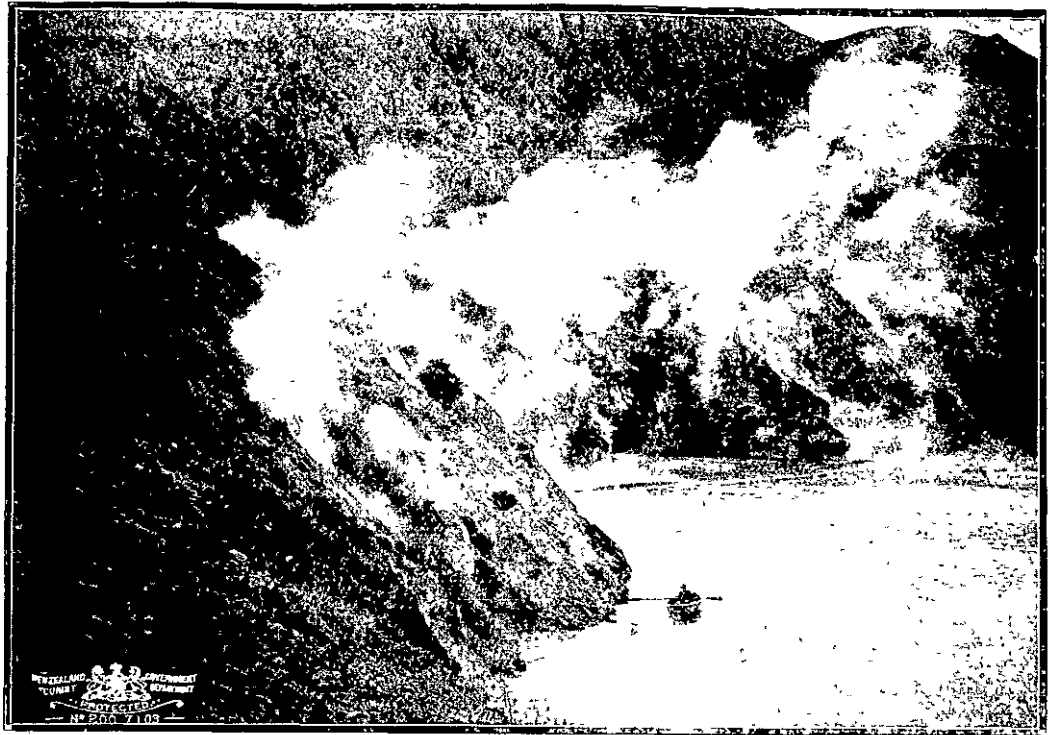


Concrete Railway Sleepers.

The uses of reinforced concrete are now so many and various that it is with little surprise that we learn of its success in experimental use for railway sleepers. Concrete piles made on the Hennebique system have received our attention lately, and now we learn that concrete is to oust the wooden railway sleeper. For upwards of three years the Lake Shore and Michigan Southern Railway has been experimenting on its lines with reinforced concrete sleepers as a substitute for the ordinary wooden type. Full particulars of these experiments appear in a recent issue of the *Railway and Engineering Review*, and from the accounts there given it appears that these sleepers consist essentially of an inverted piece of scrap 65lb rail, with the original base of the rail serving as the top face of the sleeper, the concrete body of the sleeper, 6½ in deep and 9 in wide at the bottom being moulded about the downwardly turned head of the old rail. This reinforcement was unnecessarily strong as was understood at the beginning, being purposely made so as to ascertain whether concrete can, with the assistance of enough steel reinforcement to withstand alone the bending strains to which the sleeper is subject maintain a solid body for the sleeper. Sleepers of this design laid on the main lines in 1902 and 1903 are still in service. At some of the points none of the sleepers have failed during these three or four years, but at other points a considerable percentage has failed. At certain points these have been subjected to the severest tests possible, being laid where there is a heavy freight traffic and heavy passenger trains passing at speeds frequently as high as eighty miles an hour. Altogether about 6,000 of these sleepers are in use on this railway alone, and the engineering department has arrived at two conclusions—namely permanent way laid with these sleepers is too rigid for high speed trains when the ground is frozen and it is probably impracticable to construct a sleeper body of concrete which will carry heavy and fast trains without a considerable percentage of breakages after a term of years. It is, however, considered the ideal sleeper for side tracks and yard tracks or for any track which does not carry fast traffic. Side tracks laid with these sleepers and well surfaced will need practically no attention for long periods; indeed Mr. S. Brockwell, chief engineer of the Lake Shore and Michigan Southern Railway, has no hesitation in recommending the sleeper as one of long life for any track carrying slow traffic.



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Zinc, 17 parts, copper, 1 part Antimony, 1½ parts. This possesses unsurpassable anti-friction qualities and does not require the protection of outer castings of a harder metal.

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Heat to a red heat, roll in a composition consisting of equal parts of prussiate of potash, sal ammoniac, and saltpetre, pulverised and thorough-

ly mixed. Plunge while yet hot into a bath containing 2 oz of prussiate of potash and 4 oz of sal ammoniac to each gallon of cold water.

Answer to Correspondent.

BEN BROWN DENNISTON — An alternating current can be changed into a continuous current after it has passed through the brushes of a dynamo. This cannot be done by an ordinary induction coil, it requires a converter. An alternating current cannot be used for an electro magnet in connection with an alarm bell.

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T. E. DONNE,
General Manager.