

be used tentatively in each of the great divisions of the earth, and with reference to the ultimate establishment of a universal scheme after all those divisions have been thoroughly investigated.

The time has come when North American geologists can, and ought to, hold a commanding position in this respect; and when we have elaborated a scheme of classification for the formations of our own continent, it will have equal claim to the favorable consideration of the geological world with any other.

NOTES AND NEWS.

AFTER a stoppage of two years, caused by a lack of funds, work was recently resumed on the double tunnel under the Hudson River between this city and the New Jersey side. Operations are restricted as yet to the Jersey City end of the north or up-river tunnel, which has been excavated to a distance of nearly two thousand feet from the shaft. The total length of the tunnel from shaft to shaft, when completed, will be 5,600 feet, to which must be added the length of the inclines or approaches leading to the surface, work upon which has not been begun. Work is carried on under an air-pressure of about thirty-four pounds to the square inch, and the heading progresses at the rate of twenty-five feet a week.

— Professor Elihu Thompson has perfected an invention by which the rails of street or steam railways may be welded together by electricity after being placed in position. A dynamo propels over the tracks an electric welding machine, which welds the rails into one continuous line after it passes over them. It is proposed to have at every one hundred feet a break, to allow for expansion. Any kind of rails can thus be welded.

— There has been patented in Germany a process by means of which sulphuric acid for manufacturing purposes can be safely transported. The inventor takes advantage of a property of certain salts—of which alkaline sulphates are representatives.—by which they give up their water of crystallization when heated and take it up again when cool; and he does so by mixing the salts in an anhydrous condition with a calculated quantity of sulphuric acid. The whole mass becomes granular, or may be formed into cakes, and when heated the whole liquefies, and may be used as if it were sulphuric acid, for the presence of bisulphate of soda does no harm.

— Several reports received at the Hydrographic Office in Washington during the past month serve to illustrate the source of many doubtful or imaginary dangers to navigation that encumber the charts so long before their existence can be disproved. On July 14, in 43° 17' north latitude, 57° 32' west longitude, the captain of a Norwegian vessel sighted an immense dead whale which at a distance had the appearance of a rock. A number of sea-birds were about it. On July 22 the German steamship "National," while on a scientific exploring expedition, passed a dead whale under similar circumstances. On Aug. 2 the captain of a British steamship sighted a dead whale, about a hundred feet long, showing six feet out of water. It will readily be seen how easily such an obstruction might be mistaken for a shoal, and, if reported in a region where the depths are not too well known to admit of the possibility of such a thing, it might add one more doubtful danger to the many that have been reported.

— A nailless horseshoe which has been undergoing severe tests in England during the past two years, with satisfactory results, is described as follows: The shoe is attached by a steel band which passes below the coronet from one extremity of the heel to the other. This band is kept in position by a steel pillar which runs from the centre of the shoe up to the centre of the hoof. In addition there are three short studs, one in the centre of the shoe, and the others near the heel and on each side of it. It can be put on by any one who has once seen the process, which takes about half the time required with the cold-shoe system, which latter is an improvement as regards time on the ordinary process with nails. The nailless shoe diminishes or puts an end to cutting, and is particularly suited to brittle hoofs or hoofs with sand cracks. It costs as little, weighs as little, and lasts as long as the ordinary shoe; and, moreover, is not sucked off on heavy ground.

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ONE OF THE FEATURES of the meeting of The American Association at Toronto just closed was the growth of the societies devoted to special branches of science which meet each year at the same time and place as the association. The Botanical Club has been in successful operation for some years, as has also the Agricultural Society. This year there was held a meeting of the Geologic Society, and the formation of a chemical society was vigorously discussed. The Entomological Club is another of the groups into which congenial spirits unite, possibly to free themselves of the more cumbersome meetings of the sections of the association. Of the vice-presidents' addresses, we print this week those of vice-presidents R. S. Woodward and C. A. White. That by Professor H. S. Carhart, in the Physics Section, was a review of theories of electrical action. In the Chemical Section, Professor W. L. Dudley spoke of "The Nature of Amalgams." He gave a *résumé* of the most important work done in this interesting field, and a few results of his own. Appended to the address is a complete index to the literature, embracing over three hundred titles. In the Section of Mechanics and Engineering no address was delivered, and the work of the section was quickly over, few papers being presented. Vice-president G. L. Goodale's address before the Biologic Section was on protoplasm. The address of Vice-president Garrick Mallery, before the Anthropologists, treated of the "Israelite and Indian, a Parallel in Planes of Culture." This we hope to print in an early number. The remarks of Vice-president C. S. Hill before the Eco-

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