

FERRO-CONCRETE PILES.

Ferro-concrete piles have just been used in the construction of the new law courts at Berlin-Wedding. They have been largely employed in getting in the foundations, which are placed in poor and treacherous ground, with a very unstable coefficient of resistance. After many trials it was determined to adopt piles of triangular section, with the corner cut off. They are composed of clean, hard, river ballast and Portland cement of the best quality, in the proportion of one part of the latter to three of the former. Their length varies from 17 to 26 feet. The armature consists of three iron rods tied together at regular vertical distances by eye rods, spaced every 10 inches, having a diameter of a quarter of an inch, and set into the concrete, with a blunt point at their lower end.

According to the Centralblatt der Bauvervaltung the concrete, slightly wet, is carefully prepared in a pug mill and deposited in vertical wooden moulds in layers eight inches in thickness, subsequently reduced by pressure to about half that size. Before fixing the tie-rods and adding fresh doses of beton, the surface of each preceding layer is roughened, so as to insure a thorough mixture and incorporation of the whole mass. Thus manufactured, the pile is left for a period varying from 12 to 24 hours. During the next seven or eight days it is watered constantly and abundantly. It is then taken out of the mould and again watered for the next eight or ten days and becomes sufficiently hardened and consolidated to be safely transported to the site of the works. The piles are allowed to remain in this condition for about a month, when they are fit to be driven, which operation is effected by means of a steam pile driver, with a ram weighing 2.5 tons. To prevent the heads being damaged by the fall, which is five feet

six inches, they are protected by a buffer, built up of sheets of lead, plates of iron, and timber packing, all held together by an iron ring. Special arrangements are made for guiding the piles in their descent.

GOLD MINING IN NOVA SCOTIA.

A large plate-glass model of the Canadian geological survey, to illustrate the 49 gold-mining districts of Nova Scotia, has been prepared for exhibition at the St. Louis Exposition. The model was prepared by E. R. Fairbault, of the Canadian geological survey, and is an improvement on the one exhibited at the Paris Exposition, which won high praise. The section represented, one mile long by 2,000 feet wide and 2,000 feet deep, shows by lines of different colors the veins at the surface and in the working to a depth of 475 feet, the probable succession of deeper veins, their richest portions on the north and south dips, and the direction that should be followed in deep mining.

On the model are given the following explanatory notes:—The gold-bearing rocks of Nova Scotia cover an area of some 5,000 square miles along the Atlantic coast. Their total thickness is about 27,000 feet, and they are probably of the Lower Cambrian age. Since their deposition on a sea floor they have been folded into a series of anticlines and synclines, roughly parallel with the coast line, the folds having an average distance of three miles apart. This folding was accompanied by a fissuring of the strata along the planes of sedimentation at the summits of the anticlines and gave rise to a succession of superposed saddle-shaped auriferous veins.

Mining operations have so far been confined to the veins out-cropping at the surface, and have not reached a greater depth than 600 feet, and although often conducted in a very unskillful manner they have been remunerative. The recent study of this region by the geological

survey has proved conclusively, however, that the auriferous saddle veins recur one below the other on the anticlinal domes, like the "saddle reefs" of Bendigo, Australia, which are mined so extensively to depths reaching 4,000 feet. This succession of saddle veins presents a most important field of operation for deep and permanent mining.

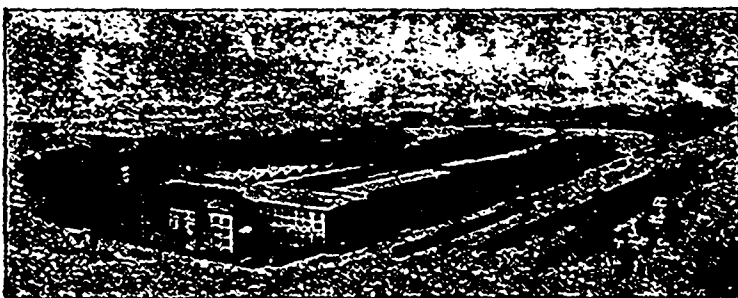
A REMARKABLE DISPLAY.

Canada's wonderful exhibit in the Palace of Agriculture at the World's Fair is a revelation, says a St. Louis correspondent, to anyone who may have had an idea that the great north country was one of cold and ice always. No sections in Uncle Sam's galaxy of States displays fairer specimens of the result of the husbandman's industry and no land shows a greater variety of products than does the great country that adjoins the United States on the north. Canada has a space of 10,000 square feet in the Exposition's mammoth Palace of Agriculture—a structure that covers an area of 28 acres and contains all that is edible from all lauds. A replica of a historic structure forms the centrepiece of this notable exhibit. One of the handsomest of the public buildings in the Dominion is the Library of Parliament at Ottawa. The dome of this building, reproduced on a smaller scale, is one of the most commanding objects in the big building. It is an octagon, 34 feet across, and its top extends 60 feet upward and brushes the rafters of the Agricultural Palace. Its frame is of pine, and the surface that shows is covered with glowing red burlap. Artistically fastened to this background are the grains and grasses of Canada, more than 3,000 specimens being shown in charming array. Great buttresses are built up of millet, a forage plant; brome grass, a fodder crop grown extensively in Western Canada and which appears shortly after the snow leaves the ground;

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