mechanical bond is thus obtained which will help considerably in resisting disintegration by traffic. With non-uniform material, a pavement will contain spots and pockets consisting mostly of fine material, which will easily disintegrate and leave "pot-holes" in the pavement.

The object of a specification's requiring that the stone shall be well rolled and hardened before any dust is spread on it, is for the purpose of obtaining this intermesh of the stone and to reduce voids to the minimum. One may thus obtain a uniform surface with a greater resistance against disintegration.

In concrete paving construction there is good reason for a specification's requiring that each batch of concrete be left at least one minute in the mixer. The material, stone, sand and cement are thus not only uniformly distributed, but also each stone is well covered with cement mortar and the voids between the stones will also be well filled with mortar. This is essential to perfect concrete. A specification forbidding sloppy concrete is due to the fact that a mixture that is too wet may run and thus leave porous spots in the concrete. This same reason applies to requirements that forms shall be tight.

In filling forms in the construction of bridges and culverts, the pouring must be done in successive layers of 6 ins. This procedure must be adhered to absolutely and is most economical, for if instead of 6-in. layers, 3 or 4 ft. layers be poured, we would find that in two or three years each side of the bridge or culvert would sink, and it would then be necessary to fill the depressions with stone or other material at great expense and considerable inconvenience to the traffic. Similar good reasons can be found for each particular of the specifications. They are the result of long study and experience and must be accepted and followed.

PUBLICATIONS RECEIVED

SPRING RAINS AND FLOODS.—Four-page folder printed in colors on coated paper, 8½ by 11 ins., issued by Wallace and Tiernan Co., Inc., 349 Broadway, New York City.

LIGNITE—ITS CHARACTERISTICS AND UTILIZATION.—Technical paper 178 issued by the Bureau of Mines, Department of the Interior, United States government; 20 pages, 6 by 9 ins. Price, 5c.; address superintendent of Documents, Government Printing Office, Washington, D.C.

NOVA SCOTIA WATER POWER COMMISSION.—Progress report for the year ending December 30th, 1918; 100 pages and cover, 6½ by 9¾ ins.; no illustrations. The members of the commission are Hiram Donkin, deputy commissioner of works and mines (chairman); W. G. Yorston, assistant road commissioner; F. H. Sexton, principal of the Nova Scotia Technical College; A. S. Barnstead, deputy provincial secretary (secretary).

WAR GAS INVESTIGATIONS.—Report by Van H. Manning, director of the Bureau of Mines, Department of the Interior, United States Government; 5¾ by 9 ins., 40 pages. This report covers research work in connection with war problems and describes some of the more important accomplishments, including gas masks, absorbents for carbon monoxide, smoke screens for ships, production of gases for warfare, oxygen apparatus for aviators, and gas poisoning. Price, 5c.; address Superintendent of Documents, Government Printing Office, Washington, D.C.

PRODUCTION BOOK.—Published by the American Spiral Pipe Works, Chicago, Ill. This book is a very handsome catalogue of the products of this company and consists almost entirely of large and excellently printed photographs of installations of spiral-rivetted pressure pipe, lapwelded steel pipe, forged steel pipe, flanges and corrugated furnaces for land and marine boilers. It consists of 88 pages and stiff board cover, 8 by 10½ ins., printed in three colors on suede finish coated paper. There is very little reading matter—in fact only sufficient to describe very briefly the various products of the company—and the book is almost enitrely an album of very interesting photographs. There are over 120 illustrations besides a number of reproductions of blue-prints.

MAKING HELIUM IN ALBERTA

British Government Finances Experimental Plant for Production of Non-Inflammable Gas from Calgary Company's Natural Gas

FOLLOWING is a press despatch from Calgary, Alta., dated May 31st, 1919: "Calgary has the first plant in Canada to produce the famous helium gas, the non-inflammable gas for inflating airships for the British government.

"This fact became available for publication here with the arrival in Ottawa of Professor J. C. McLennan, O.B.E., Ph.D., F.R.S., who has been acting for the British government in arranging for a supply of this gas which is so important to the future of aerial navigation.

"Professor McLennan recently paid a visit to Calgary and the press at that time was in possession of the facts concerning the big helium-producing experiment plant erected in this city, but they were not available for publication until Professor McLennan had submitted his report to the British authorities.

"Residents of Calgary will be surprised to learn that experiments in the production of helium gas, which is obtained from the natural gas supplied to the citizens of Calgary by the Calgary Gas Co., have been going forward for nearly two years. Success has at last been attained.

Half Million for Experiments

"To Hon. Clifford Sifton, one of the principal stockholders of the gas company, President Eugene Coste, of the company, and other officials largely, must be given the credit for the success of the plant, as it was through their untiring efforts that the Imperial British government was induced to set aside $500,000 for the making of experiments in the production of helium gas in Canada.

"The helium gas plant in Calgary is located on the Calgary Gas Company's property in East Calgary, the site of the old shops at Seventeenth Ave. and Eleventh St. East.

"The helium gas production experiments, now at a successful stage, have been carried on in a two-story, unostentatious looking brick building at this corner, which is full of costly and curious looking machinery.

"Adjacent to this building is a big wooden hangar, housing a large balloon which is used in the experiments. Supt. H. B. Pearson, of the gas company, who was in the secret since the experiments began, has been affording every facility to the British and Canadian government chemists and engineers, and all have guarded the experiments with the utmost secrecy. The buildings were under guard throughout the period of the experiments, as it is obvious that their result might have been of value to the enemy. The engineers were working at top speed to produce this gas in commercial quantities prior to the end of the war, and success was just in sight when the armistice was declared.

"However, the experiments have proceeded ceaselessly, and as a result of their success, it is expected that a huge helium producing plant will soon be erected in Alberta.

More Costly Than Radium

"The present experimental plant has a capacity of producing some 15,000 cubic feet of helium gas in 24 hours. Prior to the methods discovered of separating this gas from the natural gas of Alberta, largely by Prof. McLennan, helium gas was one of the most costly elements in the world, ranking ahead of gold, radium and other precious metals. Through the process perfected by Prof. McLennan, however, the helium gas can now be produced from the Alberta natural gas at the low cost of approximately 24 cents a cubic foot, according to a statement by Prof. McLennan in his report to the Imperial British government.

"Professor McLennan made the statement, on his recent visit in Calgary, that at pre-war times prices of helium, millions of dollars' worth of the precious product had been going up daily through the flues of Calgary citizens burning the natural gas.