regions, are gradually lowering, and sometimes very rapid drops in level are experienced. With provision for daily inspection the time when the water level will drop to the pump suction may be anticipated, while without it the operator never knows what the next day will bring. With apparatus for measuring water levels and discharge, installed as a permanent part of a plant, the efficiency of the machinery may be easily determined and maintained, and when the time comes for improvements, the data necessary for the proper selection of the new machinery may be readily and cheaply obtained.

It is impossible to lay down rules for the selection of well pumping machinery, as each case is a separate problem. The advantages and disadvantages of each class of equipment vary materially with changing conditions. Each installation must be considered by itself, and it is only by a knowledge of the machinery available, and the accurate determination of the pertinent data, that a well pumping plant can be installed with reasonable assurance of success.

UTILIZATION OF CLINKERS FROM GARBAGE DESTRUCTORS.

In his discussion of a paper on cinder concrete floor construction between steel beams, at a recent meeting of the American Society of Civil Engineers, Mr. T. Hugh Boorman, consulting engineer, New York, suggested that tests be made and a report brought in on the utilization of clinkers from garbage destructors. He stated that in 1902 his attention was first attracted to the use of clinkers in concrete, in the city of Bristol, England, where he found it was used by Colonel Yabbicum, in the construction of city cement sidewalks. He later reported in New York the advisability of the erection of the destructor to Mayor Low and after a lapse of time of some years, one was erected on Staten Island. In 1911 on an investigation of the municipal plants of a number of English cities the extent was realized to which these clinkers were utilized in concrete construction, and in addition it was found that in the Borough of Kensington, London, Eng., the clinkers were used by that municipality in the manufacture of asphalt blocks. On an inspection of the crematory at Atlanta, Georgia, last November, he found that through lack of appropriations the clinkers could not be utilized as suggested, as the old tin cans and other metal refuse were all baked together and the resultant product could only be utilized for ordinary filling-in purposes. The speaker had not investigated the several destructors that have been erected in western cities and so could not state as to whether their output could be utilized in the way in which he had found it was being done in English cities.

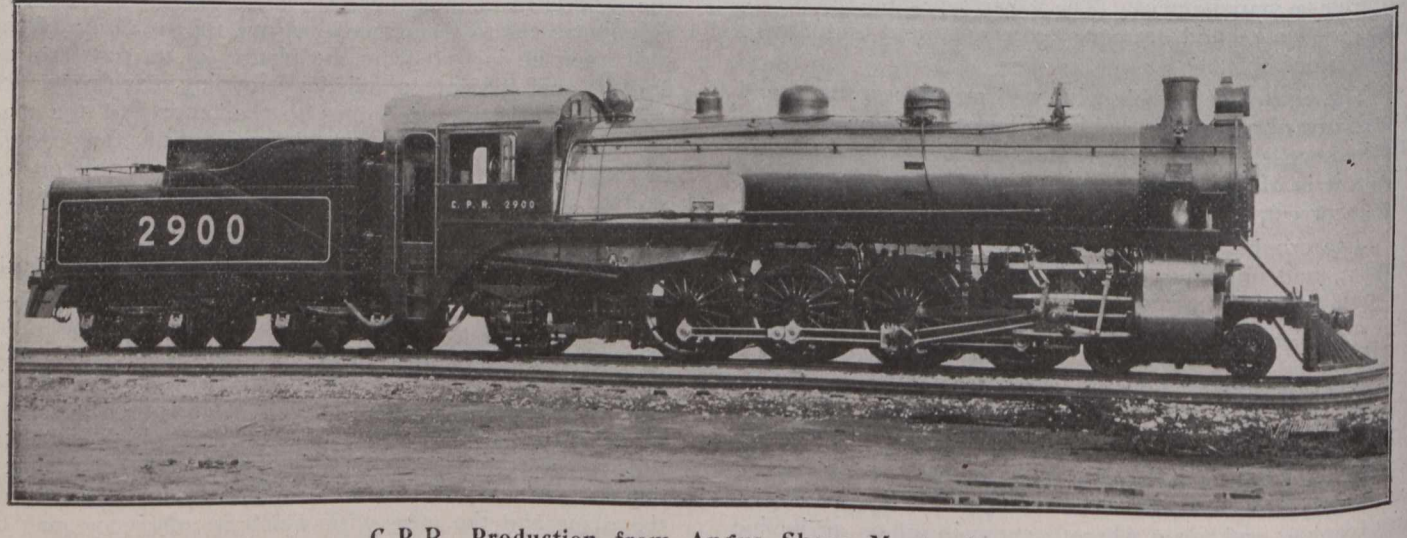
A bill is now before the Governor for signature, authorizing the Borough of Manhattan to make a contract for the erection of a destructor to be operated by contractors. Mr. Boorman expressed his view that any such project should be one carried on by the municipality itself, for while he was not prepared to endorse a statement made that the receipts from the handling of garbage and disposing of it by scientific method, would pay the expenses of the street cleaning department, he believed that a large revenue could be obtained towards paying such expenses. In view of this statement, he suggested that the committee be requested to make a report to the Society as to the comparative strength of concrete construction with clinkers, as in comparison with other aggregates.

C.P.R. LOCOMOTIVE 2900.

The accompanying illustration is of engine No. 2900, which was turned out of the Angus Shops, Montreal, last August. One of the main features in the design is the style of firebox adopted, which is 13′ 5⅝″ long and 7′ 6⅞″ wide inside, fitted with Gaines combustion chamber and arch, and having a grate area of 59.6 sq. ft. This engine was equipped with Vaughan-Horsey superheater, and vestibule cab, and latest design of screw reverse gear. C.P.R. standard practice of changeability of different parts with other types of engines was carried out wherever possible. Cylinders, pistons, piston rods, piston valves, cylinder heads, steam chest covers, boxes, axles, etc., are standard with other classes P-1 and N-3 engines. The main driving wheels are fitted with Cole driving box and axle, size 11″ dia. x 21″ long.

The following is list of general data:—

Type	4-8-2
Sub. Class	H-1a
Boiler pressure	200 lbs.
Firebox width inside	88⅞″
Firebox length inside	161⅝″
Number of tubes	210 and 30
Diameter of tubes	2¼″ & 5¼″
Length over tube sheets	20′ 8½″
Superheater	V. and H.
No. and dia. of superheater tubes	120 1¼″ dia.
Average length or superheater tubes	19′ 4½″
Superheating surface	760 sq. ft.
Firebox heating surface	299 sq. ft.
Tube heating surface	3,414 sq. ft.
Equivalent heating surface	4,853 sq. ft.
Grate area	59.6 sq. ft.
Cylinders	23 ½″ x 32″



C.P.R. Production from Angus Shops, Montreal.