

metal diaphragm at about the centre of the length. Fig. 4 shows the specimens so produced. Ten half cylinders were made for each consistency.

The specimens were tested at the age of three months by the "rattler" abrasion test commonly used for testing

### Appendix

*Strength Tests of Gravel Concrete.*—In the concrete tests herein described the aggregates were secured from the Maple Sand and Gravel Co., Maple, Ont. The sand used in 1916 in connection with the "Grading of Sands"

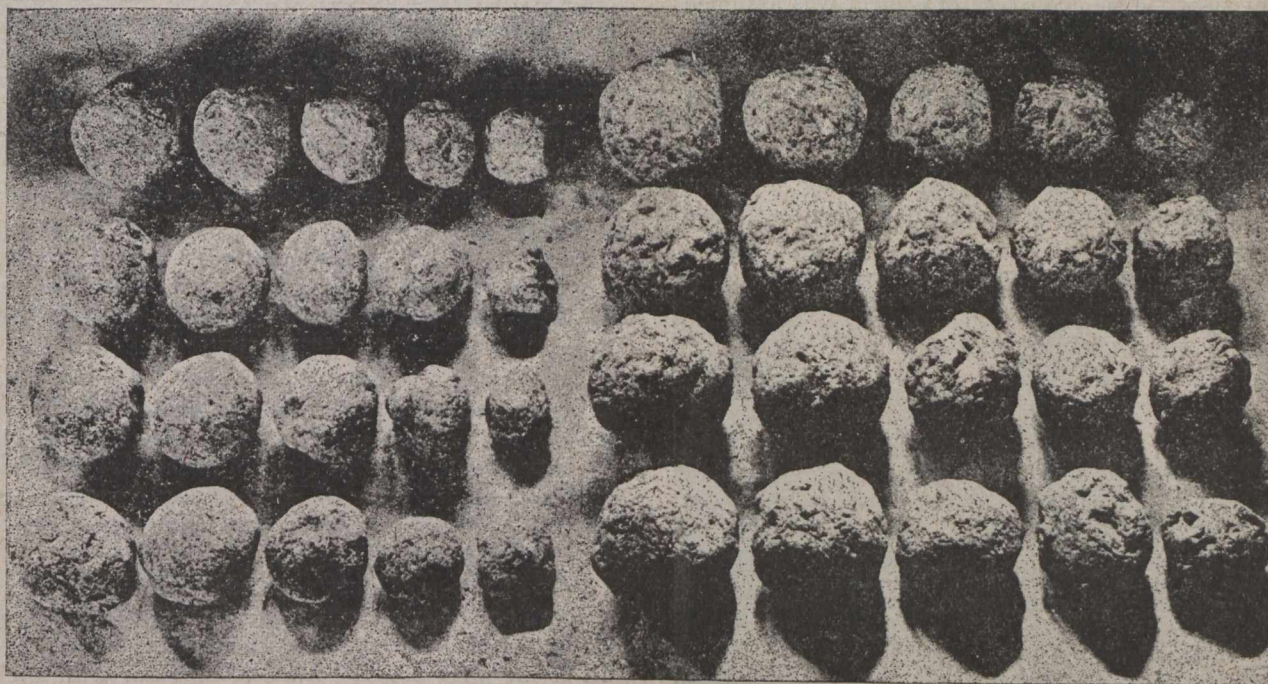


Fig. 6—"Rattled" Test Specimens: Consistency-Abrasion Tests. (Limestone Aggregate Specimens at Left, Trap Aggregate Specimens at Right. Consistencies Arranged in Order from Left to Right)

paving brick. Fig. 5 shows the percentages of reduction in weight resulting from 1,800 revolutions and from 3,600 revolutions of the machine. In this test several of the "wet" consistency specimens were entirely pulverized.

Fig. 6 shows typical specimens for each consistency after final removal from the testing machine. The trap concrete specimens are shown at the right; the limestone concrete specimens at the left. Consistencies are arranged in order from left to right.

### Conclusions

The one-year tests have produced no information from which the writer finds reason for modifying the conclusions contained in his 1917 paper. However, this further conclusion seems pertinent.

The increment of strength developed between the age of 90 days and 1 year is not constant and cannot be predetermined. In so far as "wet" concretes are concerned this increment is al-

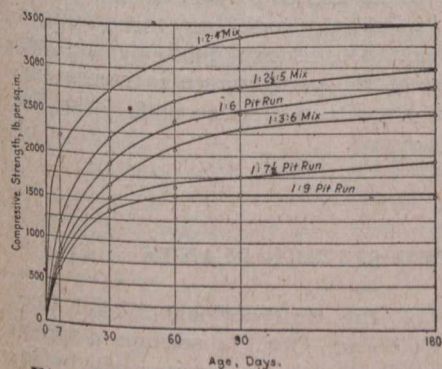


Fig. 7—Compressive Strengths of Gravel Concretes of Different Mixes

most negligible. The results obtained in the consistency-abrasion test indicate that the excess water in an over-saturated concrete reduces its resistance to abrasion and shock.

and "Consistency of Mix" tests described in the writer's paper last year was secured from the same company.

Throughout this series of tests the sizes of test specimens and the methods of proportioning, mixing, placing, storing, testing, etc., were the same as those used in the above-mentioned tests. In all cases only a sufficient

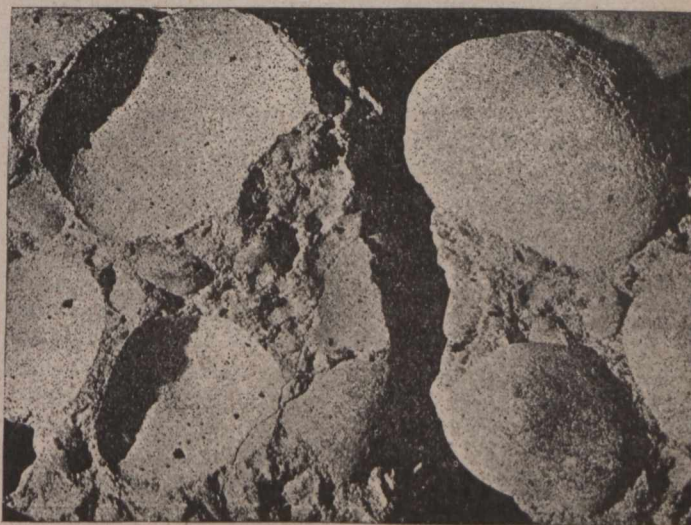


Fig. 8—Surface Contact Between Under Side of Gravel Particles and Mortar Bed, 1:2:4 Mix

quantity of water was used to produce a saturated, semi-plastic mortar adhering freely to the gravel particles. These tests are, therefore, directly comparable with the tests previously made in so far as similar aggregates of limestone origin were used in both cases.