

## REPORT OF ROAD MATERIALS COMMITTEE

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sleeve, the lower end of the plunger being spherical in shape with a radius of 1 cm.;

(d) Means for raising the hammer and for dropping it upon the plunger from any specified height from 1 to not less than 75 cm., and means for determining the height of fall to approximately one millimetre;

(e) Means for holding the cylindrical test specimen securely on the anvil without rigid lateral support, and under the plunger in such a way that the centre of its upper surface shall, throughout the test, be tangent to the spherical end of the plunger at its lowest point.

6. Method of Testing.—The test shall consist of a 1-cm. fall of the hammer for the first blow, a 2-cm. fall for the second blow, and an increase of 1-cm. fall for each succeeding blow until failure of the test specimen occurs.

7. Recording and Reporting Results.—The height of the blow in centimetres at failure shall be the toughness of the test specimen. The individual and the average toughness of three test specimens shall be reported when no plane of structural weakness is apparent. In cases where a plane of structural weakness is apparent the individual and average toughness of the three specimens in each set shall be reported and identified. Any peculiar condition of a test specimen which might affect the result, such as the presence of seams, fissures, etc., shall be noted and recorded with the test result.

A revision of the tentative test for the determination of the apparent specific gravity of coarse aggregates was also proposed by the committee. In its report last year the committee proposed a tentative test which was published among the tentative standards. While, according to the report, it is believed that this test is satisfactory for aggregates that are absolutely homogeneous, recent investigations have demonstrated that it is difficult to ascertain the homogeneity of an aggregate. The tentative test proposed by the committee to supersede the one presented in 1916 follows:

The apparent specific gravity shall be determined in the following manner:

1. The sample, weighing 1,000 g. and composed of pieces approximately cubical or spherical in shape and retained on a screen having 1.27-cm. ( $\frac{1}{2}$ -in.) circular openings, shall be dried to constant weight at a temperature between 100 and 110° C. (212 and 230° F.), cooled, and weighed to the nearest 0.5 g. Record this weight as weight A. In the case of homogeneous material, the smallest particles in the sample may be retained on a screen having  $1\frac{1}{4}$ -in. circular openings.

2. Immerse the sample in water for 24 hours, surface-dry individual pieces with aid of a towel or blotting paper, and weigh. Record this weight as weight B.

3. Place the sample in a wire basket of approximately  $\frac{1}{4}$ -in. mesh, and about 12.7 cm. (5 in.) square and 10.3 cm. (4 in.) deep, suspend in water\* from centre of scale pan and weigh. Record the difference between this weight and the weight of the empty basket suspended in water as weight C. (Weight of saturated sample immersed in water.)

4. The apparent specific gravity shall be calculated by dividing the weight of the dry sample (A) by the dif-

\*The basket may be conveniently suspended by means of a fine wire hung from a hook shaped in the form of a question mark with the top end resting on the centre of the scale pan.

ference between the weights of the saturated sample in the air (B) and in the water (C), as follows:

$$\text{Apparent Specific Gravity} = \frac{A}{B-C}$$

5. Attention is called to the distinction between apparent specific gravity and true specific gravity. Apparent specific gravity includes the voids in the specimen and is therefore always less than or equal to, but never greater than the true specific gravity of the material.

This test, according to the report, is suitable for both non-homogeneous and homogeneous coarse aggregate and, like the test for toughness of rock, was recommended by the committee for publication for one year as tentative before being put to letter ballot for adoption as standard.

The recommendations of the committee for the revision of the standard method for the distillation of bituminous materials for road treatment dealt only with the specifications for the thermometer used. It was explained in the report that the method adopted by the society in 1916 was entirely satisfactory from the standpoint of Committee D-4 alone, but that the paragraphs specifying the thermometer to be used should be revised to conform with similar portions of other specifications.

During the past year, according to the report, a joint conference committee, made up of members of Committees C-9, On Concrete and Concrete Aggregates, and D-4, has given further consideration to the terms "aggregate," "bank gravel," "screen," and "sieve." As a result of that study the committee recommended for publication as tentative the following definitions:

Aggregate.—The inert material, such as sand, gravel, shell, slag or broken stone or combinations thereof, with which the cementing material is mixed to form a mortar or concrete.

Screen.—In laboratory work an apparatus, in which the apertures are circular, for separating sizes of material.

Sieve.—In laboratory work an apparatus, in which the apertures are square, for separating sizes of material.

Bank Gravel.—Gravel found in natural deposits, usually more or less intermixed with fine material, such as sand or clay, or combinations thereof; gravelly clay, gravelly sand, clayey gravel and sandy gravel, indicate the varying proportions of the materials in the mixture.

The committee also reported that in addition to its recommendations regarding the adoption of the proposed method for the determination of the specific gravity of coarse aggregates and the definitions preceding, the joint conference previously referred to had under consideration methods proposed by Committee D-4 for the determination of the specific gravity of sand and other fine highway material, and of voids in mineral aggregates; and was also considering definitions for "filler," "grit," "loam," "screenings," and "silt."

The committee also submitted as a part of its report a discussion of British standard nomenclature as compared with the nomenclature adopted by the society. This was included because of the publication of a report on "British Standard Nomenclature of Tars, Pitches, Bitumens and Asphalts" by the Engineering Standards Committee of Great Britain.

Hon. F. G. Macdiarmid, Minister of Public Works for Ontario, announces that arrangements have been made for a short course in highway construction to be taken up at the fall term of the Ontario Agricultural College. Lectures will be given by members of the staff of the highway department. The course will cover road development, growth of traffic, economic value of roads, road drainage and grading, road foundations, maintenance, etc.