REPORT OF COMMITTEE ON MINERAL AGGREGATES

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The newly formed Committee on Mineral Aggregates, organized as a subsidiary of the Committee on Character and Use of Road Materials, held its first meeting last Tuesday It understands its duties to include the definition of problems in the realm of aggregates, the formulation of research projects, the sponsorship of the prosecution of these projects of cooperating organizations, and finally,the correlation and reporting of results Its aim is to supply those who write specifications, with data upon which to base their requirements.

Permissible limits of test values of aggregates for a given use differ widely throughout the country This is inevitable, and is many times a matter of economic necessity, since it is obvious that materials possessing similar characteristics are not universally available Highways must be built, and aggregates, local or imported, must be used

Even though there is logical reason for variation, the certainty exists that there is a serious lack of information regarding the true significance of many of the tests commonly specified As a matter of fact, it is felt that many tests do not directly measure the value of the material for the use to which it is to be put In addition, there is more than a suspicion that some important properties of aggregates are not measured, directly or indirectly, by present tests It must, therefore, be admitted that present limitations of knowledge prevent the formulation of thoroughly intelligent aggregate specifications, which, in their ideal form, should combine the maximum of tolerance in the matter of test requirements, with the necessary degree of safety.

Although aggregates have been the subject of much study, very little has been accomplished in determining the effects of native characteristics upon their usefulness A list of these characteristics includes hardness, toughness, strength, absorption, surface characteristics, density, chemical and mineralogical composition, and several others They are inherent in the material and cannot be changed, but we do not know how to evaluate them accurately in terms of highway serviceability

Anything like a complete investigation of these several properties, and their respective influences on the behavior of aggregates in all classes of highway work, would be a colossal task The multiplicity of variables, which cannot be eliminated in the study of any one characteristic, indicates the necessity of extended and costly research, and probably the ultimate analysis of results by statistical methods. For instance, in studying the effect of toughness, it would be impossible to assemble a variety of materials, alike in a dozen other properties, and differing alone in toughness Despite the extreme difficulty and magnitude of the problem, the significance of these inherent characteristics is fundamental and must sooner or later be the subject of intensive study.

Certain other characteristics are to a greater or lesser degree controllable, and form the bases of much uncertainty to the writer of specifications. Among these are gradation, shape of particle, and mineral or chemical coatings or incrustations These require immediate attention, and present somewhat less difficulty to the investigator

Therefore, while alive to the extreme desirability of instituting research with respect to the native qualities of aggregates, the committee, in the earlier stages of its activities, has decided to concentrate, its attention upon several factors of the more controllable type Plans have been made to outline investigations which will, it is hoped, clarify points over which there is much discussion The general subjects of some of these are (1) the relation between the durability of coarse aggregates and that of mixtures, portland cement or bituminous, in which they are used, (2) the practical significance of coatings existing on aggregate, (3) the effect of characteristics of fine aggregate, other than gradation, on bituminous or cement mortars

The inauguration of these few projects, important in themselves, will serve to launch the work of the committee. Laboratories, properly equipped, must be found to carry on the work Willing cooperation in this respect is anticipated. As time goes on, and additional studies can be outlined, the scope and magnitude of the committee's work in this important field will be enlarged.