

The method described above can be used for the determination of the alpha index of micas belonging to the biotite group. The gamma index is determined by oil immersion and the retardation is measured when the cleavage has been made vertical. The slide thickness is ascertained by measurements on a nearby quartz grain. Using the retardation formula, the birefringence ($n_2 - n_1$) is calculated from:

$$(n_2 - n_1) = \frac{R}{t \times 10^6}$$

The value of n_2 is the gamma index; therefore, the alpha index is gamma minus the value of the birefringence determined above. The gamma and alpha values can be used with the four component diagram of Winchell (*Am. Mineral.*, 20, p. 776) to ascertain the theoretical composition of the biotite mica.

NOTES ON THE NOMENCLATURE OF TEXTURAL TERMS IN PETROGRAPHY

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The usage of the terms "texture" and "structure" in continental Europe is markedly different from that employed by most North American and British authors. In many instances the European uses the term "texture" where "structure" would be used in this country, and vice versa. Furthermore, differences are noted in the modifying adjectives used in describing the texture of rocks.

Johannsen, in one of the most helpful text-books on the texture and structure of rocks, defines texture as follows: "Texture is used for the smaller features of the rock itself, that is, those features which depend upon the size and shape, and arrangement and distribution, of the component minerals." (Johannsen, A.: *A Descriptive Petrography of the Igneous Rocks*; Vol. I, 2nd. Ed., p. 32.) This textbook includes in a handy Appendix, definitions of 376 textural and structural terms, together with references to the first recorded use of each term.

While comparing the textural and structural terms used by Johannsen and other authors, the writer felt that they could be divided into two main groups. The first group, taken mainly from Latin and Greek words, including terms such as, *intersertal*, *porphyritic*, *fine-grained*, refer to only one property or characteristic of the mineral or rock. The term of the second group, such as *aplitic*, *granitic*, *diabasic*, are derived from rock

names. In contrast to those of the first group, terms of the second group indicate not a singular feature but rather all the textural features of the type rocks from which they are derived. Moreover, when such terms are used mineralogical as well as textural similarities to the type rock are automatically implied.

It would seem advisable to avoid the synonymous use of terms from these two fundamentally different groups. To give a list of synonyms, as Johannsen does, is doubtless very useful if the large number of textural and structural terms is considered; but in some cases it would seem desirable to define more precisely those terms which have similar but not synonymous meanings. With the development of every science the need increases for exact terms sharply defined.

Priority of descriptive terms is recognized in all branches of natural science. However, in petrography the historical priority cannot be adhered to strictly because the microscope was not used until 1858 to reveal with some precision the textural, structural, and mineralogical features of rocks.

Special consideration should be given when similar terms are used with reference to different rock groups. An example is the choice of the terms "automorphic" or "idiomorphic." As the term "idioblastic" is widely used in relation to metamorphic rocks, preference should be given to the term "idiomorphic" in describing igneous rocks, in spite of the historical priority of the term "automorphic."

MICROSEPARATION OF MINERALS IN HEAVY LIQUIDS

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A technique which may save much work and which has been found useful in separating and identifying mineral grains is that of using drops of heavy liquid on a microscope slide. The operations are best performed under a binocular microscope.

A few drops of any suitable liquid, such as methylene iodide, are placed on a microscope slide and a small quantity of the granular material under investigation stirred in with a needle. The heavy particles will quickly settle to the surface of the slide, while the light particles will rise to the center of the drop at the surface.

The float material may then be removed by lightly touching a narrow strip of blotting paper to the top of the drop, leaving the sink material immersed in the drop. Quartz may be easily removed from minor heavy

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