augite and other constituents along the original fracture planes, which were probably, in part, determined by the arrangement of the two chief constituents.

The points of interest brought out in the study are: (1) that this peculiar distribution of the pyroxene is due to dynamic processes, (2) the importance to be attached to the process of solution and recrystallization in the formation of gneisses, (3) the significance of the original character of the rock with reference to the product derived from it by dynamic processes, and the differences resulting from variations in the extent to which it has been affected by orographic agencies, and (4) the evidence showing the derivation of a gneiss out of a syenite, and establishing the term syenite-gneiss as the name of a distinct rock type.

14. *The Titaniferous Iron Ores of the Adirondacks. Prof. J. Kemp, New York City.*

The paper opens with a brief statement of the characters of the two kinds of iron ores which are afforded by the region, the merchantable magnetites and the titaniferous. The former are in gneisses; the latter in the gabbros and anorthosites of the Norian, which are believed to be intruded through the gneisses. A list of localities of the titaniferous ores is given and distinction is made between the smaller bodies which are, so far as can be seen, basic developments of gabbro, and the enormous ore bodies at the old Adirondack Iron works, in the heart of the mountains. These latter are in massive, anorthosite, which is almost entirely formed of large, blue-black crystals of labradorite. The largest ore body, which is the one crossing Lake Sandford, contains numerous included labradorite crystals, each of which is surrounded by a reaction rim 5-10 mm. across. It is further shown that the wall rocks show no signs of the widespread crushing that is exhibited in the general "mortar structure" of the Adirondack and Canadian anorthosites but are plutonic rocks, free from evidences of dynamic metamorphism. The argument is then made that the ores are segregations from an igneous magma formed during the process of cooling and crystallization.

15. *The Decomposition of Rocks in Brazil. By J. C. Branner, Stanford University, Calif.*

16. *The Bearing of Physiography on Uniformitarianism. By Prof. W M. Davis, Cambridge, Mass.*

The conditions and processes postulated in the physiographic study of land forms—Geomorphology of some authors—are among the cardinal principles of uniformitarianism. The success in the interpretation of nature by means of this kind of study confirms the correctness of its postulates, and thus brings to the support of uniformitarianism a large class of facts, whose bearing on this theory was not at all perceived when its early advocates announced it.

17. *Analysis of Folds. By Prof. C. R. Van Hise, Madison, Wis.*

As ordinarily treated folds are considered as simple flexures in two dimensions. As they occur in nature folds are compound flexures in two dimensions. The analysis of simple folds given by Margerie and Heim is summarized. For the sake of simplicity folds are first treated in two dimensions. A composite fold is produced by the combination of various simple folds. Composite folds include both normal composite folds and abnormal composite folds. The genesis of each is discussed, and each is classified into upright, inclined, and overturned anticlinoria and synclinoria.

When composite folds are cross folded, these are called complex folds. The character and origin of complex folds are discussed. Rules are given for observation in regions which are folded in a complex manner. The use of folds in the discovery of unconformity and the secondary changes which accompany folding are summarized.