

The examination of the "kernels" therefore shows that they are composed of a considerably crushed and altered granite, probably belonging to the class of hornblende granites.

*The Ordinary Granite*—The grey granite which constitutes the mass of the rock and encloses the *kernels*, in the hand specimen shows no perceptible foliation and is impregnated with pyrite and quartz, the latter occurring also in the form of little vein, traversing the rock in various directions. The quantity of these minerals present however varies considerably in the different specimens. When examined under the microscope the rock is found to be composed of orthoclase, plagioclase, quartz, calcite, pyrite, with in some cases a very small amount of titaniferous iron ore and of some zeolite. Hornblende, chlorite, epidote and the other accessory minerals above mentioned were not found in any of the sections.

As in the case of the "kernels" the rock exhibits a very distinct cataclastic structure, induced apparently by crushing, but the crushing has gone much further in some cases than in others. Both feldspars are more or less decomposed and show mechanical deformation, the twin lines of the plagioclase being often bent and the crystals fractured and faulted transversely, and often presenting an appearance of having been shoved into one another. The individuals of both feldspars are usually surrounded by borders of broken grains from which arms of similar broken material frequently extend into the unbroken grains. In many other cases when the feldspars are examined between crossed Nicols they can be seen to be in the act of falling apart into a number of grains similar to those constituting the above mentioned borders. The orthoclase is present in larger amount than the plagioclase but as in the case of the "*kernels*" the latter mineral is as a general rule rather better crystallized than the former.

Whether any of the quartz was an original constituent is a question which it is impossible to determine. A large amount of this mineral however is always present and most of it is of secondary origin, occurring in the rock in veins or in irregularly shaped masses. Small veins are found in all the specimens and are often seen sending off lateral arms into the rock. The quartz is clear and colorless and often contains lines of minute cavities. It is usually in large individuals, which although occasionally, especially in the narrow portions of the veins, show an uneven extinction, generally extinguish simultaneously over their whole extent. A considerable length of the vein is often composed of a single individual. The edges of the veins against the rock are well defined and the component grains come together along sharp lines without any of the interstitial broken material. Calcite often occurs associated with the quartz sometimes filling a portion of the same vein. In some cases it even preponderates over the quartz, forming the principal constituent of the vein. The quartz with its associated calcite is also seen in some sections in irregularly shaped masses, which, though pretty sharply defined against the more or less decomposed rock, at other times occur so that it is impos-