sult of differential movement along planes that dip southward at an angle close to seventy degrees. Although the broadest extent of the sheared area is along the ridge near the Delaware River, evidence of the intense differential movement within the rocks continues at least as far to the west as Fairview School. In the road cut south of the school is an exposure of a vitreous quartz formation which appears to be an irregular veinlike mass occurring in crushed Byram gneiss. Under the microscope the quartz is seen to be intensely granulated and is a typical mylonite. This material is as highly mylonitized as any material found in the county.

The shear zone and the occurrence of mylonitic material on top of the pre-Cambrian ridge are of interest in connection with the suggested overthrust origin of the pre-Cambrian belt. If such a theory of origin is correct, one would expect maximum shearing and granulation along the major thrust plane. Although sheared and crushed rocks are found in many places where they might be interpreted as occurring along such a thrust, the occurrence of the most highly developed shear zone completely within the pre-Cambrian rocks (rather than at the contact of pre-Cambrian with Paleozoic rocks) and the finding of mylonitic material on the crest of the ridge are evidence in opposition to a major thrust underlying the pre-Cambrian rocks.

SECTION BETWEEN SOUTH MOUNTAIN AND KITTATINNY (BLUE) MOUNTAIN

As shown on the geologic map, the formations between South and Kittatinny Mountains crop out in narrow to broad bands trending east to northeast. Northward from South Mountain the sequence of rocks is regular from the pre-Cambrian to the Silurian. Each formation in turn passes from view by dipping northward beneath the next younger series of strata. There are several local exceptions to this condition, the most prominent one being the ancient crystalline rocks of Chestnut Ridge and Pine Top-Camels Hump, already described.

This general regular succession might imply simple structure, which is not the case. The geologists of both the First and Second Geological Surveys of the State clearly appreciated the complex structural features of the Lehigh Valley. J. P. Lesley* in 1875 aptly characterized the situation in the following paragraph describing the structures of the Cambro-Ordovician limestones.

It seems a very easy matter to obtain the knowledge which we want in so open, well-formed, almost level valley, bounded on one side by a mountain faced by a well-known rock underlying the limestones, (Potsdam s.s., No. I [now known as the Hardyston]), and in the other by hill slopes of unmistakable overlying slates, (Hudson River, No. III [Martinsburg]). But what seems a facility turns out to be the principal difficulty. What seems so smooth and regular a surface conceals one of the most contorted, twisted,