information than any of the other investigators. For years he and groups of his students tramped the region on foot over week ends, holidays and vacations, collecting every bit of information possible. Among these students was Joseph Barrell who later won recognition as one of the ablest and most careful geologists whom this country has produced and whose early death was a distinct loss to American geology. Unfortunately, Prof. Williams’ contributions were not written in the best form to convey his ideas to the reader. The writer feels that had he not had the opportunity to go into the field with Prof. Williams on numerous occasions he might never have fully comprehended his points of view. The destruction of all his detailed field notes by fire was a great loss. The writer here wishes to record his sincere appreciation of Prof. Williams and his work.

The writer does not regard himself as a glacial geologist and therefore feels his limitations in preparing this discussion. However, it may prove useful to later investigators to have a summarized description by a person familiar with the region and with many phases of the problem. Having taken a number of glacial geologists to critical places in this region, opportunity has been afforded to learn the different interpretations that have been offered by them. This applies particularly to geologists who have never published their ideas on this region.

One of the most important questions to be considered concerns the number of times the glacial ice advanced into the region. Did the ice push downward one, two or three times from the northeast and come within the present limits of Lehigh County? Also, how shall the deposits of this region be correlated with those of the Mississippi Valley, the generally accepted type sections?

The earliest workers in the region recognized only one ice invasion, the one best preserved and most noticeable because of the development of the fine terminal moraine in the Bangor region of Northampton County. This has been correlated with the Wisconsin ice sheet of the Mississippi Valley.

When glaciated cobbles were discovered to the southwest of this morainal belt, they were explained as outwash material carried by the water resulting from the melting of the ice. However, when ice-deposited material, glacial till, was found in these places it was recognized that at some time glacial ice did extend beyond the “terminal moraine.” The belt was termed the “glacial fringe,” the “attenuated border” or “extra-morainic drift.” Prof. Williams searched the Lehigh Valley to determine the extent of this “fringe.” He found it to extend as far as the Schuylkill River, near Shoemakersville, Berks County. To this fringe he applied the name Kansan, but used the term in a different sense than do the geologists in the Central States. He believed that the Kansas deposits, as he described them, represented the first advance of the ice sheet in the region and that near its margin it was thin and accomplished little glacial erosion. He also believed that the ice was more fluid near the margin because of the melted ice and that the front receded quickly. When the front had moved back to the Bangor region there was a long halt and the pronounced terminal moraine was built. Williams therefore believed