greater smoothness is owing principally to this added length of time during which it was undergoing wear. Its irregularities are comparatively few and small; it seems a quite typical peneplain. On the north the irregularities are many and often considerable; are the rule rather than the exception. The surface is quite hummocky and hilly, and the contact line an irregular one. The supposed evidence is perhaps exaggerated in importance, owing to the possibility of undetected faults in certain localities, but is abundant even should all doubtful evidence be eliminated. It does however seem to be true that the irregularities are mostly of a minor order of magnitude, so that, when the tremendous thickness of rock material which was removed in this Precambric interval is taken into account, with the several uplifts, and the quite respectable altitude at times which are thus indicated, the surprise is not that the surface is so rough, but that it is not vastly rougher. Maximum differences of level of but a few hundred feet are all that are involved, and these comparatively seldom. Whether the surface were not sufficiently smooth to be worthy of the name peneplain, is merely a matter of the personal conception of such a surface which different individuals may hold.

The writer has shown that, in the Little Falls region, the present inclination of this old surface is about 100 feet per mile toward the south. The Beekmantown and Trenton rocks which rest on it have a present dip in the same direction of about 70 feet to the mile; whence, if we assume that they were deposited in a horizontal attitude, we obtain a slope of 30 feet to the mile as that which the old surface possessed at the time when the Paleozoic rocks were deposited on it. While this is a gentle slope, it is too steep for one graded by stream action and suggests that the movement of depression itself resulted in some further tilting of the surface. Little or no direct evidence has been obtained in other districts as to its amount of slope.

### Paleozoic topography

If the Utica sea overswept the entire region, and all the available evidence seems to indicate that it did, then the region arose from beneath sea level with a smooth, constructive surface whose slopes depended mainly on the character of the uplift. But of this we