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pinus, or a slope of about $4\frac{1}{2}$ feet to the mile. But if it be assumed that this level marks that of the surface of a *mer de glace*, an extension of the Laurentide glacier (as has been done by Mr Upham), a similar westward depression must likewise be admitted. In so far as such a surface might have departed from horizontality, it must have done so by sloping down toward its termination in the west. Ice standing at a level of 4,400 feet at the Cypress hills could under no conceivable conditions have been pushed up to a height of 5,300 feet at the Porecupines, 200 miles further in the general direction of its flow.* Thus, under this hypothesis, we would require to add the amount of slope of the surface to that necessary under the first mentioned assumption.†

As to the period to which this great western depression may be assigned, it is pretty clear that it must accord with one or the other of the glacial formations not already accounted for. In other words, it must have been synchronous with the lower or upper boulder-clays or with the silty deposits subordinate to them. I have elsewhere given reasons for the belief that both these boulder-clays of the western plains are attributable to the agency of floating ice,‡ but this hypothesis need not here be specially insisted on. Important bedded silty deposits are found to blend with the upper part of the upper boulder-clay, and the fact that large erratics are most abundant on the plains at the top of or overlying the upper boulder-clay, with the similarity of these to those found on and about the Porecupine hills and foothills farthest in toward the mountains, leads me to suggest that this period of greatest depression corresponded with that of the upper boulder-clay or immediately followed it.

A closer comparison of the highest levels of erratics in different parts of the field shows that the area of greatest depression, and that of greatest subsequent uplift, touches the southern part of the Porecupines and extends thence in an east-southeasterly direction, and that to this direction a series of "isobasic" lines of decreasing amount must have been roughly parallel for some distance to the northeastward. The changes in elevation seem, however, to have been accompanied by deformation of some importance, for the highest level of drift upon West butte is found to be considerably below what it should be had the difference in level been distributed uniformly in proportion to distance between the foothills and the Cypress hills, although all three of the localities are approximately in an east-and-west line. The facts are as yet too few to enable these

* The maximum depth of ice or water covering the adjacent low country must have been about 2,000 feet near the Cypress hills and 2,100 feet near the Porecupines.

† A similar relative change of level would, of course, be equally implied on the supposition of a great western glacier-dammed lake.

‡ On the Physiographical Geology of the Rocky Mountain Region in Canada. Trans. Roy. Soc. Can., vol. viii, sec. 4, p. 63 et seq.