

In regard to the Lake Superior region, it seems to me an easy matter to prove the unconformability of the Animikie formation with the Huronian system, as laid down by Dr. Bell, and with the folded schists of Prof. Irving. The latter gentleman, in his interesting and excellent report on the Archaean formations of the North-western States for 1885, admits that the folded schists of the Marquette and Menominee districts, as well as those of the north shore of Lake Superior, or a great part of them, are Huronian. He then tries to show that they are the equivalents of the Animikie formation. He states (p. 206) in reference to the Lake Superior Huronian of Dr. Bell:—

"Accepting, for the time, some of them as Huronian, we are immediately confronted with a structural problem of a good deal of difficulty, i.e. the relation of these folded schists to the unfolded Animikie series. Generally, as the Animikie series is traced towards its northern border, it is found to lie against a belt of granite and gneiss. This is so along the shore of Thunder Bay and thence westward to Gunflint Lake, is true again at the Mesabi Range and Pokegama Falls district, in Minnesota. North of this belt of granite again come the belts of folded schists. The appearance thus presented is at first sight one of general unconformity between the flat-lying Animikie and an older series, including the gneiss and folded schists. But a close study of the folded schists indicates, as has already been shown by Bell, Chester, Winchell, and myself, much lithological similarity between portions of them and the Animikie series, so that a different structural hypothesis at once presents itself to the mind. This is the one that I have elsewhere illustrated and explained. The hypothesis is, briefly, that the Animikie rocks were once continuous with the folded schists to the north of them, and that they are now separated, merely because of the erosion of the crowns of the folds between them, the close folding of the folded schists being supposed on this view to have been produced concomitantly with the broad, simpler bend which forms the trough of Lake Superior. On this hypothesis, the unfolded schists of the north shore are compared with the unfolded Penokee of the south shore, and the folded schists of the national boundary with the folded schists of the Marquette and Menominee region. All are supposed to represent a great sheet of Huronian deposit, once continuously spread upon a floor of far older gneisses and schists which has since been brought to view by folding and denudation."

It appears from this, as from his whole report, that the professor rests his hypothesis mainly upon the lithological similarity of portions of the two formations to one another and it is not claimed, I believe, anywhere, that stratigraphical structure favours it, but decidedly the contrary. Yet, in the case of contiguous formations like these, stratigraphical evidence is the strongest that can be produced; and, in the present one, as I shall endeavor to show further on, it is clear and decisive against the equivalency of the two formations. It is true that he shows, in regard to the Kingfisher and Knife Lakes districts, that Prof. Winchell saw appearances that indicated a transition of the Animikie flat beds to the folded schists, and that the extensive examination of the same locality by the Assistant Geologist, Chauvenet, showed a correspondence. Irving says (p. 207): "His work thus far, as also the results of our microscopic study of the specimens gathered, have tended to show that the Knife Lake schists are actually the Animikie slates in a folded condition." If so, they must have been folded by local agencies, and I feel confident that they can have no unbroken connection with the folded schists of the Huronian system. I have not been in the locality referred to, but a little to the east I have exam-