While Professor Miller offers this as a local and not a general explanation, the bison and fires have been regarded as general causes.[2]

Even if we concede the accuracy of the maps, records and traditions cited, the explanation is not convincing, even for the particular area. As a general cause, however, applicable to the entire prairie region, it is wholly untenable. The objections to it may be briefly stated as follows:

(1) Larger herds of bison, etc., disappeared from Iowa long before the white man settled the state, yet the prairie has held its own even to the present.

(2) The sharp loess ridges in western Iowa and Missouri, already noted, with their sharply defined prairie and forested slopes, also militate against this theory.

(3) Many of the prairie slopes in western and northeastern Iowa are so steep that heavy animals like the bison would find a footing with difficulty and would not be tempted to use such places when more accessible prairie pastures were abundant nearby.

(4) The number of animals necessary to keep the prairie treeless would be vastly greater than anything the oldest records suggest. There are not even traditions of such large herds as would be postulated by this theory. In Iowa alone there were more than forty thousand square miles of prairie.

(5) The numerous prairie openings (true prairie, as shown by the flora) which are scattered through the groves and forests of the general prairie region, could not have been formed in this way. During the more than fifty years that the writer has observed these openings they have maintained their prairie characteristics, yet the bison is a mere faint tradition in this region.

(6) The association of the bison and fires as a cause is contradictory. If the bison kept the prairie closely cropped where did the fires find fuel?

The flora of the prairies is distinctly xerophytic, and its presence upon the areas which we call "prairies" is determined by those ecological factors which make for xerophytism.

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ON CHANGING FAMILY NAMES

WITH Professor Bradley's proposition (SCIENCE, LXVIII, 1928, pp. 102–104) to allow the same rules to operate in selecting the type genus of a family as in selecting the type species of a genus the writer is in entire accord. He does not, however, accept Professor Bradley's proposed regulation to cover changes of family names, and, in place of his proposed Article 5, would substitute:

Art. 5. When the name of the type genus of a family or subfamily is found to be a homonym or synonym, the family or subfamily takes the next oldest valid name.

This is in accord with the principles involved in changing a generic name. When such a name must be changed, it is not insisted that the new name be based on the same type species as the invalid name—as Professor Bradley insists that the new family name must be based on the same type genus as the old—but the next oldest name is used, a name that may frequently be based on a type subgenerically distinct from the first type species.

The writer feels that his proposal is superior to Professor Bradley's for the following reasons: (1) It carries out consistently as applied to the selection of the type genera of families and subfamilies the same principles now utilized in the selection of the type species of genera and subgenera. (2) In cases where different authors have used different names for the same family or subfamily and the oldest of these becomes invalid, it allows for the introduction of the next oldest already more or less familiar name rather than the creation of an entirely new and strange name.

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OBSERVATIONS IN PERU

IN "Science News" (SCIENCE for August 3) there is mention of the earthquakes in and along the northern coast of Peru. Here at Negritos, which is located just about one mile northeast of Pt. Parinas (Lat. 4° 40′ 15″ South; Lon. 81° 20′ 5.9″ West), we felt the quakes, which were strong enough to cause the hanging electric lights to swing and to be felt by persons seated and standing. However, in my laboratory a wash bottle flask of one liter capacity which was standing on its head was not upset. This would seem to show that here the shocks were not very strong.

It may also be of interest to some of the readers of SCIENCE to know that on the 17th of August we had a very red and long-lasting sunset. It was most unusual for this season of the year. The sky was very bright well up to about two thirds of the way to the zenith, the light lasted about one hour later than the normal sunset glow (which here is usually short). The two nights following were also fairly red but much shorter glow and less color. The why of this I do not know unless it was the volcanic eruption in or near Batavia, in Java, as reported in the paper of August 10 (*El Tempo,* Piura, Peru).

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[2] Harshberger, John W., "Phytogeographic Survey of North America," 1911, p. 517; Campbell, D. H., "An Outline of Plant Geography," 1926, pp. 106, 107.