mountains and with the maximum extension of the continental glaciers and the beginning of their shrinking. He says (p. 53):

**In all probability there were as many high-water stages as there were glacial epochs, though traces of all are not found, on account of scarcity of exposures. In the Lahontan Basin records of 3 and perhaps of 4 distinct lake stages are described. During the intervening periods, corresponding to the interglacial epochs, the basins were deserts as today.**

Doctor Antevs ascribes the expansion of the waters to the combined effects of little evaporation, due to low temperatures, and of greater precipitation, caused by the climatic change which checked the expansion of the ice-sheets and caused their disappearance; but the precipitation may have been of less importance than the temperature. The present writer receives the impression that Antevs attributes the changes of temperature to general causes affecting perhaps the whole world. Several of the loftiest mountains in the Great Basin region suffered glaciation, but there was no common ice-cap. This local glaciation was produced by the same factors as were the ice-sheets in the northeastern part of the continent, and it began before the ice-sheets reached their maximum extension.

Each ice-sheet ought to have corresponded with a glaciation in the Great Basin region, but the later glaciers possibly destroyed all traces of some of the earlier. The youngest moraines correspond to the last ice-sheet, the Wisconsin; the oldest moraines probably to the Kansas, which was the most extensive. According to Antevs, the most striking feature in the Pleistocene of the Great Basin is the incongruity between the vast extension of the lakes and the insignificant glaciation; noteworthy also is the scantiness of delta formation during the Bonneville stage. He is inclined to believe that the Provo stage was longer, moister and colder than the Bonneville stage.

Naturally one is interested in Antevs' view as to the age of the mammalian fauna found in the Great Basin Region. He refers (his p. 75) to *"Elephas columbi"* found in the canyons of Humboldt River and Walker River; but nobody knows whether the scanty materials belonged to elephants or mastodons. They were probably elephants, but even if they belonged to *Elephas columbi* they would signify no more than that the deposits belonged to the Pleistocene. On the basis of McGee's finding a part of a cannon bone of a bison in Walker Canyon, Osborn (*Age of Mammals,* p. 468) concluded that the age of the beds was more recent than that of the Silver Lake (Fossil Lake) Equus beds, with which Gilbert had correlated them; but the probability is great that the bone was not that of the existing bison, but of an undeterminable species of early Pleistocene time. The camel remains are of special importance and the writer believes that they belong exclusively to the first half of the Pleistocene. Doctor Antevs refers to the fossil tiger, camel and horse found at Astor Pass and he quotes Dr. John C. Merriam's opinion expressed in 1918 (Bull. Dept. Geol. Univ. Calif., vol. x, pp. 517-521) and already cited. Doctor Antevs writes that it is not known from which stage this fauna dates, but that it should probably be assigned to the last lake period (his p. 76). On the next page he tells us that "the last Bonneville, Lahontan and Mono, consequently date back about 30,000 to 35,000 years." This proposition involves the acceptance of the view that practically all of