# GEOGRAPHY OF OKLAHOMA

CHARLES N. GOULD

# Geography *of* Oklahoma



BY

CHAS. N. GOULD, PH. D.

PROFESSOR OF GEOLOGY
THE STATE UNIVERSITY OF OKLAHOMA

DIRECTOR
OKLAHOMA GEOLOGICAL SURVEY



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BUNN BROTHERS
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the Reagan Sandstone. It lies directly on the granite, which is exposed as high peaks near the center of the mountain ranges. It is of Cambrian age. Above the Reagan is a very heavy ledge of limestone, the Arbuckle limestone, 6,000 to 8,000 feet thick, one of the heaviest ledges of limestone in the world. The upper part of the Arbuckle is Ordovician in age. Then comes the Simpson sandstone, 2,000 feet thick, and the Viola limestone, 800 feet thick, also of Ordovician age. Next is the Sylvan shale, then the Hunton limestone, which is of Silurian and Devonian age. A ledge of Hunton limestone standing on edge is shown in Fig. 17. Above the Hunton is the Woodford chert, probably of upper Devonian age. Figs. 5, 8, 9, 17, 18, 19, 20, 21, 33, 83 and 86 show the rocks of these various formations.

All these formations were laid down in regular succession in the long-gone prehistoric seas. Sometimes the country was raised—the land stood above water—and then it was eroded or worn away by the action of the elements. For the most part, however, the deposition of sediments was continuous, from the beginning of the Cambrian to the close of the Devonian age. During these times many animals lived, but they were all low forms of life. There were none of the higher forms, such as reptiles, birds or mammals, which were introduced at later geological periods. There were trilobites, corals, crinoids (Fig. 13), shells and bryozoa or sea-mosses in great numbers. Their skeletons have been preserved in the various formations as fossils. In the Hunton formation alone more than 200 different species have been found, the greater part of which are brachiopods, a kind of shell. There are many places in the Arbuckle Moun-

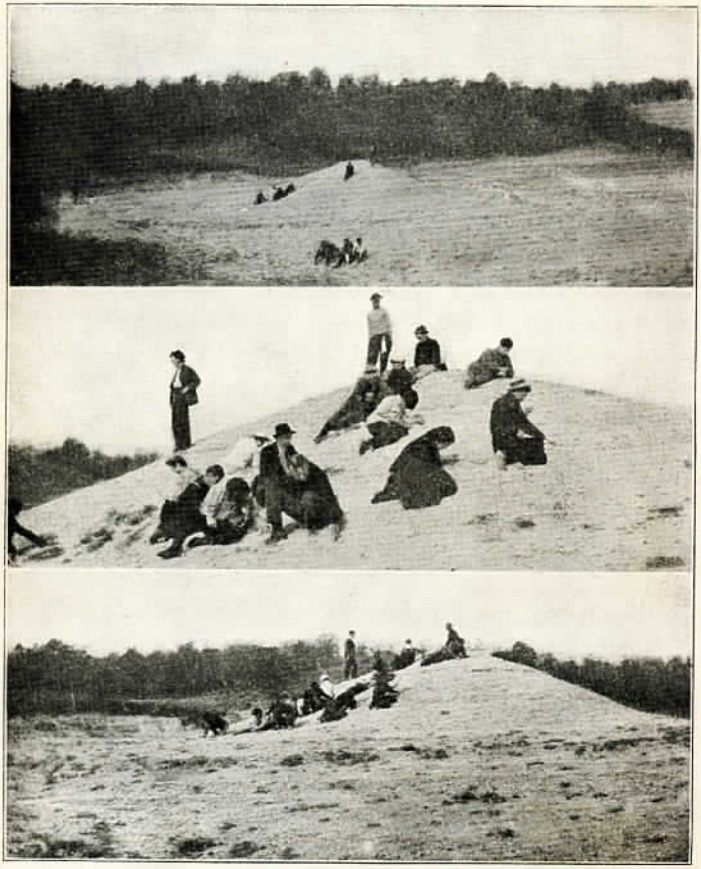

FIG. 18. THREE VIEWS OF WHITE MOUND NEAR DOUGHERTY, OKLA.

tains where the fossils are as thick on the ground as acorns under an oak tree. Fig. 18 shows three views of "White Mound," a fossil-bearing locality of the Hunton limestone. Fig. 19 shows a party of geology students from the University of Oklahoma, camped by the mountains, and Fig. 18 shows the same party collecting fossils at White Mound.

**Origin of the Arbuckle and Wichita Mountains.** During the next geological period, the Carboniferous, there

FIG. 19. CAMP OF GEOLOGY STUDENTS IN THE ARBUCKLE MOUNTAINS

was a series of great upheavals in many parts of North America. Large areas of land were raised above the ocean. The Appalachian Mountains in the eastern part of the continent and the Wichita and Arbuckle Mountains of Oklahoma were elevated at that time.

There are a great many places in Oklahoma where the rocks of these mountains may be studied, but one of the best localities, and the one most easily reached by many people in the State, is that part of the Arbuckle Moun-

tains along the Washita River between Davis and Ardmore. At this place one may find many fossils and see some very fine examples of folding and faulting, showing the effects of the terrific strains to which the rocks have been subjected. Fig. 20 shows rocks which have been folded, and Fig. 21 rock standing on edge. There are a number of waterfalls, the most noted of which are Turner's Falls (Figs. 6 and 7) and Price's Falls (Fig.

FIG. 20. FOLDED ROCKS

22), besides the Washita Gorge (Fig. 8), the "Burning Mountain" and other places of interest.

The geological structure of the mountains is shown in Figs. 23 and 24. Fig. 23 represents a section across the Arbuckle Mountains during Carboniferous times after the rocks had been deposited and the dome had been elevated above the ocean, but before it had been eroded. At that time the Arbuckle Mountains stood up as a great oval dome sixty miles long, twenty miles wide and two miles

high above the surrounding plains. As soon as it had been raised out of the water, the agents of erosion—rain, running water, wind, frost, etc.—began to cut away the rocks and to wash them down into the seas. The process continued for a long period of time. In fact, it is still in operation. The higher rocks which formed the top of the dome have all been worn away, exposing the rocks underneath, until at the present time nothing remains

FIG. 21. ROCKS ON EDGE

but the eroded stump of the old mountain, as shown in Fig. 24. In passing from the Washita River to the granite peak 700 feet high known as the East Timbered Hills, which forms the core of the mountains, one walks over the upturned edges of more than two miles of stratified rocks, including limestones, shales and sandstones. In ascending 700 feet in altitude one descends more than 10,000 feet geologically.

**Carboniferous Rocks.** During Carboniferous times