
CHERT RIVER, AN INFERRED CARBONIFEROUS STREAM OF SOUTHEASTERN OKLAHOMA

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My own observations and facts gleaned from the literature and from conversations with other geologists lead me to infer that a great river flowed out of the land to the southeast throughout much of Pennsylvanian and lower Permian time, and that it may have drained an area of dark igneous rocks which is now covered by Cretaceous deposits on the south flank of the present Ouachita Mountains. The area under consideration is covered by the maps of Taff (1902). In conversations and in informal talks before local geological societies I have been calling this inferred stream Chert River because of the large amount of chert pebbles which it carried from time to time. I think that the concept of Chert River and the smaller streams which supplemented it is a postulate to a clear understanding of the stratigraphy of a great part of the Pennsylvanian and lower Permian rocks of northeast Oklahoma.

Many geologists have long been of the opinion that the sediments that make up the greater part of the Pennsylvanian and lower Permian rocks of northeastern Oklahoma came from the southeast. Deltaic deposits found at various stratigraphic levels and from place to place along the outcrops of these rocks lead me to infer that there were numerous streams flowing into the sea separately. Conditions must have been much as they are today along the Atlantic and Gulf coasts of the United States.

Probably most of these inferred streams were not large, and probably most did not endure for long, in terms of geologic time, but among them there seems to have been at least one notable exception that was to other streams of the time as the Mississippi River is to other streams of the present.

As the late Paleozoic sea receded westward, Chert River extended westward across the most recent deposits, probably reworked them and deposited both primary and reworked chert pebbles in successively higher formations. The Arkansas novaculite and other cherty formations of the Ouachita Mountains afforded an ample primary source of chert pebbles.

In Atoka time this great stream left deposits of chert pebbles in a matrix of fine brown sand which now make up the high ridges west and southwest of Stringtown, and in Garber time it made deposits of well-weathered chert in the Garber sandstone south of Tinker Field, a few miles east of Oklahoma City. Other well-known chert conglomerates probably laid down by Chert River are in the Seminole and Vamoosa formations. Less-conspicuous chert deposits are found at various stratigraphic levels between the Atoka formation and the Garber sandstone.

According to other geologists the chert conglomerates are thickest and the pebbles largest in a belt extending from Stringtown to Tinker Field, and they play out both to the north and south. There is thus no evidence that the source of the chert pebbles lay either to the north or in the Arbuckle Mountains to the south.

As to the assumption that Chert River may have drained an area of dark igneous rocks now concealed, Morgan (1924) reported the occurrence of pebbles of dark igneous rock in the Wewoka formation which seemed to him different from any known igneous rock in the Arbuckle Mountains and concluded that they may have been brought from a distant region.

It is interesting to note that Branner (1897) made a good case for such westward-flowing drainage in Arkansas, Oklahoma, and Texas in Carboniferous time and for the subsequent reversal of that drainage with the development of the present eastward-flowing drainage.

LITERATURE CITED

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