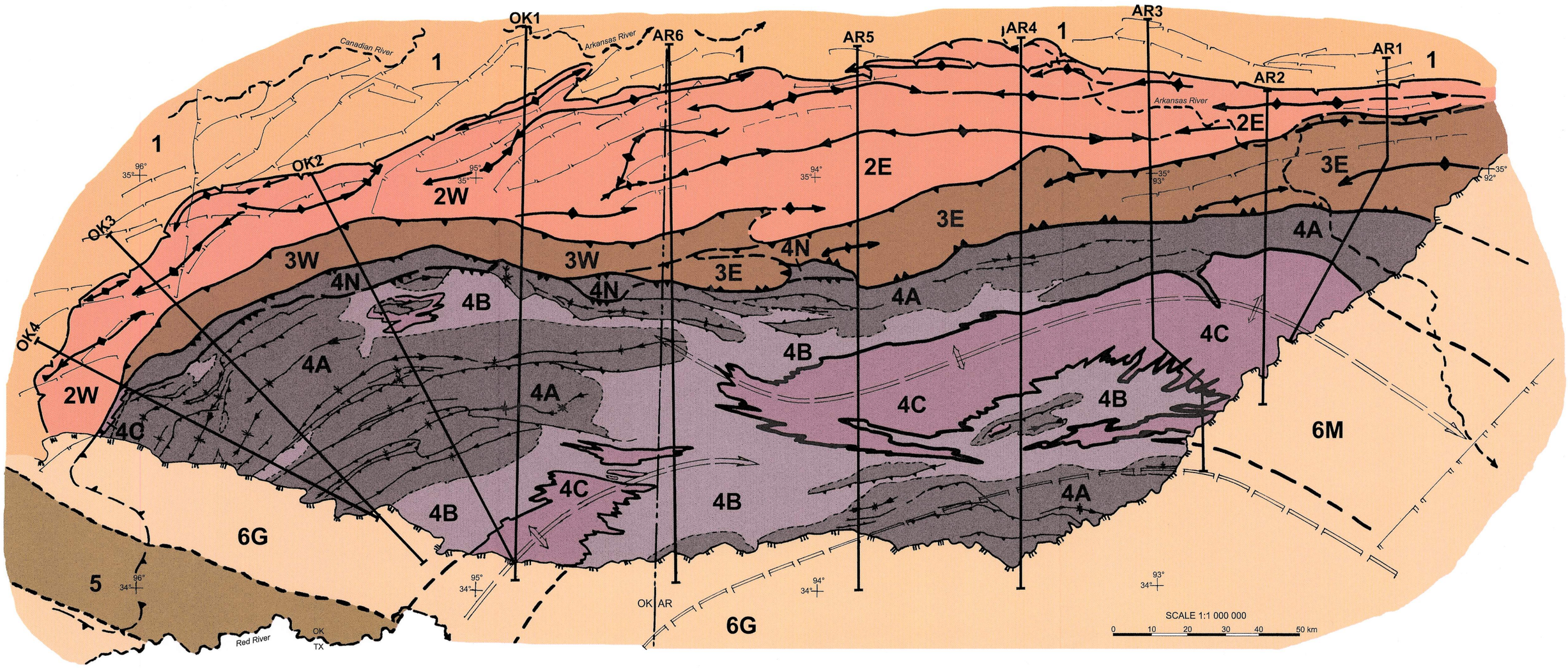

Continental Foreland (central and northern Arkoma Basin, Region 1)

1 Gently dipping south flank of the Ozark Uplift, broken by a network of early Atokan to late Desmoinesian normal faults developed possibly along Precambrian fracture sets. No compressional structures related to the Ouachita orogeny recognized. Common anticlinal drape structures over deep faults form numerous traps of gas fields.

Normal faults in pre-Atokan rocks

Northern limit of compressional structures

Southern Arkoma Fold Belt (Regions 2W, 2E)

2W **2E** Thin-skin compressional fold belt mainly detached along Atokan shales. Relatively short displacements across a substrate of extensional preorogenic fault blocks containing a multitude of down-to-the-south Atokan growth faults. The latter gave rise to fault-propagation folds in the fold belt. The resulting fold trends imitate the deep-seated fault network in this unconventional fold belt (east-west in the east and mostly northwest, northeast, and north-south in Oklahoma).

Axes of major anticlines, showing plunge

Frontal thrusts of the Ouachita Thrust Belt (Choctaw Fault in the west, Ross Creek Thrust in Arkansas). On their downthrown north side these faults are accompanied by a complex and varied triangle zone, beneath which the basal detachment level descends southward from lower Atokan into Mississippian shales.

Frontal Ouachita Thrust-and-Fold Belt (Regions 3W, 3E)

3W **3E** This belt consists of the northernmost exposures of the Pennsylvanian deep-water turbidites which were deposited in an orogenic foredeep that was encroaching on the subsiding southern continental margin. In the Oklahoma salient the lower Atokan turbidites rest on a suite of coastal to transitional upper-slope sediments containing basal Atokan Spiro sandstone, Morrowan Wapanucka Formation–Chickachoc Chert and Cromwell Sandstone, and Morrowan and Mississippian Springer-Caney shales. In the west this belt consists of a complex thrust sheet with numerous frontal imbrications (**3W**). In the east, south of the Ross Creek Fault, the belt (**3E**) is made up of almost exclusively of a single complex syncline of very thick (6+ km) Atokan turbidites.

The fact that both the Choctaw and the Ross Creek Faults terminate to the east indicates that this structural belt belongs to the continental foreland and is not excessively allochthonous.

Frontal thrust of the Ouachita Allochthon (Regions 4N, 4A, 4B, 4C). The entire Paleozoic section south of these faults is deep-water facies and must have been derived from south of the continental platform margin. The bounding faults, the Ti Valley Fault in Oklahoma and the Y City Fault in Arkansas, have the role of a terrane suture. In Oklahoma the suture is a true overthrust, but in Arkansas it is an underthrust (fossil triangle zone?).

Northern Zone of the Ouachita Allochthon (Region 4N)

4N This is a discontinuous, imbricated and folded segment at the base and in front of the main Ouachita thrust sheet. This discontinuous zone may represent a slope facies and contains a basal detachment that has climbed from the Ordovician into the Stanley (Mississippian) and Jackfork (Morrowan) Groups.

Surface trace of the master Ouachita fault. This fault is the principal suture line or fault between the elements belonging to the continental foreland and the truly allochthonous portions of the orogen.

Main Ouachita Allochthon (Regions 4A, 4B, 4C)

This thrust sheet does not offer any subdivisions that would allow a logical division of the region into separate tectonic units. At least three different regional structural styles, which are tied to dominant lithofacies domains of the stratigraphic section, are recognized. In descending order these are:

4A The **Pennsylvanian–Mississippian massive turbidite sandstone domain** (**4A**). The Mississippian upper Stanley Group, the Morrowan Jackfork Group and Johns Valley Formation, and the Atokan Atoka Formation combine to form broad lobate synclines or half-grabens along with cuspate, tepee-like, and commonly faulted anticlines.

Approximate position in the Stanley Group of major zone of disharmony

Axes of synclines, showing plunge

Thrust faults within the allochthon

4B The main **ductile domain of the Stanley Group** (**4B**). The tightly folded main mass of Stanley shales (2–3 km thick) contains several thin sandstone sequences that form independent fold trains. Most faults emanating from the overlying and underlying competent rocks disappear in the flowage of these ductile shales.

4C The **pre-Mississippian outcrops of the Central Uplifts** (**4C**) are also shale-dominated but have been subjected to mild greenschist metamorphism. The section contains several thin competent chert and sandstone–quartzite units including the Arkansas Novaculite, Blaylock Sandstone, Bigfork Chert, Blakely Sandstone, and Crystal Mountain Sandstone. A majority of the folds show south-vergent limb geometries, but fault geometries appear to be mainly south-overturned, originally north-vergent thrust faults.

Axial trends of the late Central Uplifts (4C). These appear to be cored by antiforms of foreland Cambro–Ordovician carbonates (where drilled).

5 **Subsurface southeast extension of the Late Pennsylvanian–Early Permian Arbuckle Uplift**

Border of buried Arbuckle Uplift

6 GM **Cretaceous to Quaternary overlap of the Gulf Coastal Plain (6G) and the Mississippi Embayment (6M)**

Limit of the Gulf Coastal Plain and Mississippi Embayment

Western margin of the Reelfoot Rift

Approximate position of the Paleozoic Continental Margin

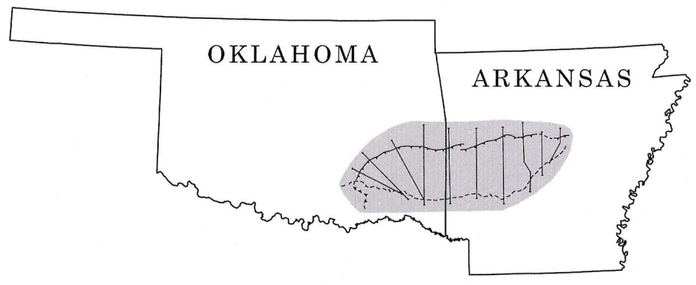

PLATE 1
MAJOR STRUCTURAL PROVINCES

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