

MAP OF BEDROCK GEOLOGY

Scale 1:250,000
CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS
DATUM: MEAN SEA LEVEL

INTRODUCTION

Unusually economic growth, and improved standards of living in rural areas of Oklahoma require ever-increasing amounts of water. Basic information on the availability and usability of water is needed in many areas to assist the water-supply engineer and individual water users with adequate data for orderly development and wise use of this vital resource. Recognition of the need for such information on a regional basis, the U.S. Geological Survey and the Oklahoma Geological Survey conducted a reconnaissance appraisal studies, with special emphasis on ground water. These studies, together with similar appraisals made in three other panhandle counties, will provide generalized hydrologic information for the state. The two quadrangles in the portion of the Fort Smith and Tulsa quadrangles have been published by the Oklahoma Geological Survey as Hydrologic Atlas 10 and 11, respectively. This reconnaissance appraisal of the Ardmore quadrangle and the Oklahoma portion of the Sherman quadrangle, encompassing an area of about 9,000 square miles, is the third in this series.

Information presented in this reconnaissance study was obtained from field and laboratory studies and from published and unpublished records of State and Federal agencies. The U.S. Soil Conservation Service, the Oklahoma Water Resources Board, the west-trending faulting and folding of the resistant limestone beds. The Arbuckle Plains is an area of gently rolling land, with numerous small, rounded limestone beds of Ordovician age that are several thousand feet thick and intensely faulted.

The Arbuckle Plains area is underlain primarily by shale, fine-grained sandstone and limestone, and dolomite. The most prominent dip generally to the west-northwest and pass beneath the area is the Anadarko basin, a broad, north-trending feature. The most prominent dip in the Arbuckle Plains is generally to the southeast, as the beds are tilted toward the surface in some places and act as a barrier to the movement of water at other places.

The

in the central part of the region is the Arbuckle Hill and the Arbuckle Plains, forming an uplifted area of rocks that comprise mostly limestone, dolomite, sandstone, and granite of Precambrian through Mississippian age. Erosion of the mountains has left a rugged surface with as much as 600 feet of relief. The Arbuckle Plains area is underlain by dolomite, with west-trending faulting and folding of the resistant limestone beds. The Arbuckle Plains is an area of gently rolling land, with numerous small, rounded limestone beds of Ordovician age that are several thousand feet thick and intensely faulted.

The explanation for the geologic maps describes

the rock type and water-yielding characteris-

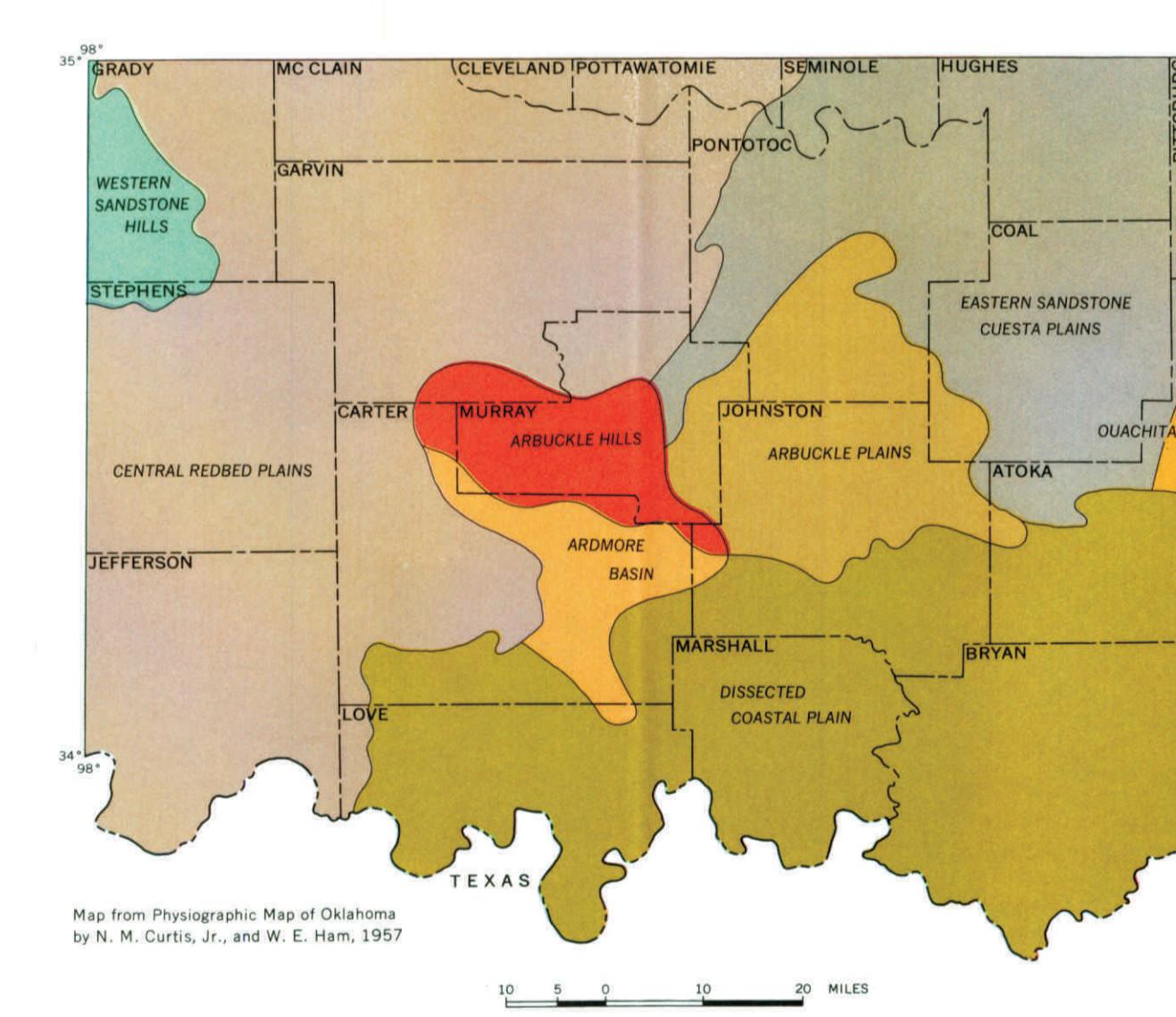
tics. The following is a list of the most

favorable aquifers in the quadrangle: alluvium, ter-

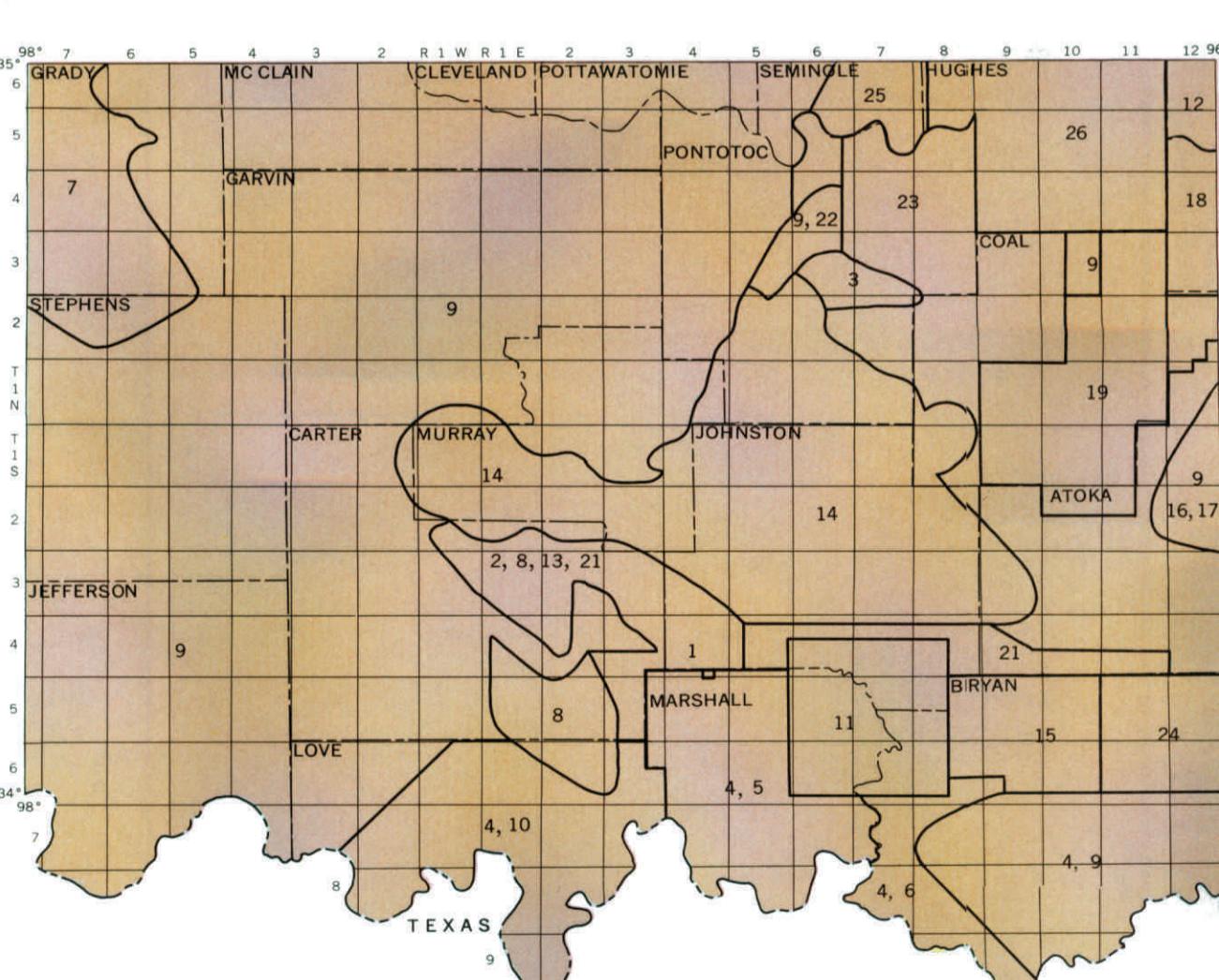
rain, sandstone, dolomite, limestone, sandstone, Middle Ordovician sandstone, West Spring Creek and Kindred Formations undifferentiated, and Cool Creek and Custer Formations undifferentiated.

The remaining area is generally underlain by shales,

sandstones, and tightly cemented dolomites that are less favorable for the development of large water sup-



MAP OF PHYSIOGRAPHIC PROVINCES



INDEX TO GEOLOGIC MAPPING

RECONNAISSANCE OF THE WATER RESOURCES OF THE ARDMORE AND SHERMAN QUADRANGLES SOUTHERN OKLAHOMA

By
Donald L. Hart, Jr.
U.S. Geological Survey
2nd Printing, 1974
2nd Printing, 1984
3rd Printing, 1994

EXPLANATION

The stratigraphic nomenclature and age determinations used here are those adopted by the U.S. Geological Survey and the U.S. National Oceanic and Atmospheric Administration.

ARDUBBLE MOUNTAINS

Quaternary

Glaciogenic

Glaciogenic