At 2:00 on the morning of Easter Sunday, April 2, 1972, the trumpeters will sound the Call to Worship for the 48th presentation of the Wichita Mountains Easter Sunrise Service.

Preceding the trumpet call is a year of work by dedicated volunteers from three states. They have prepared and maintained the settings in the Holy City of the Wichitas, where the rugged terrain so remarkably resembles that of Israel, the ancient Holy Lands of Jerusalem, Bethlehem, Palestine.

They have cut, sewed, mended. They have rehearsed the 73 page script of Biblical scenes to be presented during the dark hours leading to the dawn of Easter morning. Not alone those who appear; but the electricians who so dramatically light the huge scenes and tableaux; the speakers whose voices say the familiar, inspiring lines of scripture; the sound technicians who mix and blend the music, the instruments, the voices, of song and spoken word.

As you arrived earlier in the evening military police from nearby Fort Sill assisted you in finding a place to park your car. Lawton service club members provided you with a program. Others from the Junior League, Civil Defense, the local police, the sheriff’s office, the Highway Patrol, Red Cross, and Boy Scouts, have contributed to secure your safety and enable you to attend this inspirational service.

It is all a massive effort of cooperation, of people, designed in the plan of the scriptures it portrays, a plan of selflessness in work, of looking toward the beyond, of people together searching for God.
May 13--14  "Lovers & Other Strangers" (Gaslight Theatre) . . . Tulsa
May 13--14  "Childs Play" (TU) . . . Tulsa
May 14--15  Jim Shoulders Rodeo . . . Miami
May 14--15  "Trailing of Tears" Drama . . . Tahlequah
May 16--20  Armed Forces Day Celebration . . . Altus
May 16--20  Indian Golf Tournament . . . Fairfax
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Chimney Rock is not the easiest place to find, but this natural wonder, and the vast and scenic arena northwest which contains it, are worth the search.

Cross the Cimarron south of Freedom, turn left, and you'll soon encounter an ancient sign indicating the general direction and mentioning a distance — 9 miles. Chimney Rock may be nine miles (as the crow flies) from that sign. By our speedometer it was a little more than fifteen miles.

At one point, as we drove across a newly harvested wheat field, I said, "This can't be the right road!"

But it was.

It is a drive through awesome vistas, rugged mesas, and plains.

While Chimney Rock is most noteworthy, there are other shapes — like the huge rock formation you pass enroute which looks as if some giant cowboy had left his saddle lying there. Chimney Rock may, from other viewpoints, suggest to you objects other than a chimney. From the angle of first approach it looks like a huge squaw boot.

All about it is sparkling mica in the earth, a broad plain of grazing cattle, cloud formations entirely fanciful, the sky-wheeling hawk, and silence; restful silence. We are grateful to the Oklahoma property owner who permits us to enter on his land to approach and admire the Chimney Rock and the arena of earth which gives it a setting.
Early in 1962, a group of interested china painting enthusiasts met in Oklahoma City to form an organization so successful that it has expanded its scope from statewide to worldwide. In 1967, it became The World Organization of China Painters.

This spring’s convention, held April 13-15 at Oklahoma’s Western Hills Lodge, marks the Tenth Anniversary of this ambitious, talented, and still growing group which now has more than 6,000 members in 27 states and four nations. They publish a handsome magazine edited by Mrs. B. M. Salyer, Jr. They produce beautifully painted pieces like those shown here.

They make friends for Oklahoma in far places.
Augusta Metcalfe gave more to life than she took from it. In a lonely land, she was good company, courageous, optimistic, scarcely daunted by vicissitude. As cow country folks used to say, she would do to ride the river with. The places, people, and things she touched were made better by her touch. Hers was a rare gift.

Brought to Oklahoma in 1886 when she was five years old, she lived most of her life on the ranch land claimed by her father along the Washita south of Durham. She started drawing and painting when very young. She never had an art lesson. Entirely self-taught, her subject was the land and the activities it fostered.

Ranch life, the working of cattle, horses, frontier times, pioneering people and the scenes and backgrounds of their lives, their work and play, these she painted, and she painted them superlatively. She
preserved an era and a place by portrayal on canvas. Honored by her contemporaries, her paintings may be seen in print, hanging in art museums, and in private collections. She turned her ranch home into a museum, open to all who came. Her visitors saw a fine collection of relics and keepsakes, including letters from Thomas H. Edison, Harry Lauder and General Douglas MacArthur.

Most of all, they saw her paintings, a room full of them, for she was always busy.

“. . . her price is far above rubies . . . Strength and honor are her clothing; and she shall rejoice in time to come . . . Give her the fruit of her hands; and let her own works praise her in the gates.” Proverbs 31:10, 25, 31.
BY HUGH SCOTT

The Oklahoma Athletic Hall of Fame is still in formative stages. Its initial impetus came from Harold Brown, whose ranch is on the Cimarron between Cushing and Yale, and the late Bud Loftus, of Yale. They found that Oklahoma was one of the few states that did not have an Athletic Hall of Fame. "And more good athletes per acre, per capita come out of Oklahoma than any other state," Brown insists.

They approached the late Gomer Jones, then athletic director of the University of Oklahoma, and Henry P. Iba, athletic director-coach of Oklahoma State University and Olympic champions. "They were exuberant about it," Brown reported. By-laws and a charter were patterned after the 46 states already having Athletic Halls of Fame. The Oklahoma Athletic Hall of Fame is now two years old.

Architectural plans for the Oklahoma Athletic Hall of Fame include this projected building to be constructed a few blocks from the Jim Thorpe home and memorial in Yale. Predecessor of the Athletic Hall of Fame was the Jim Thorpe Awards Committee, formed some five years ago to honor high school athletes. This activity was begun in Yale, Oklahoma, where a small white house in which Thorpe lived with his family is being restored as a permanent memorial to Jim Thorpe.

LEE K. ANDERSON: Coached at Drumright and Classen High School, O.C. Served for forty years as executive of the Oklahoma Secondary School Activities Association. Organized the Oklahoma Officials Association and was instrumental in organizing the Girls' National Basketball Rules Committee. Served on national rules writing committees of various sports. Is a member of the National Basketball Hall of Fame and recipient of the Oklahoma Coaches' Distinguished Service Award. Has also received awards from the Missouri Valley Conference, Oklahoman and Times, Oklahoma School Administrators, and Oklahoma City All-Sports Association.

GLENN DOBBS: An outstanding athlete at Frederick, he was three times All-Missouri Valley Conference and an All-American football player while attending Tulsa University. Played for Randolph Field in the Cotton Bowl, 1944. "Rookie of the Year" in 1946 with Brooklyn in the AFL. Later starred with the Los Angeles Dons. One of the all-time greats in Canadian Professional Football.

ALBERT A. EXENDINE: Born at Bartlesville, this Delaware Indian was an All-American at Carlisle in 1906-1907. As assistant to "Pop" Warner there in 1908, he helped coach the immortal Jim Thorpe. He had an undefeated year at Georgetown University in 1917, and also coached at Oberlin,
Washington State University, Occidental College, Northeastern State College (Tahlequah) and Oklahoma State University. He became a member of the National Football Hall of Fame in 1970.

ED GALLAGHER: Played football and ran track for Oklahoma State University. His 99-yard run against Kansas State is a school record. He coached nineteen undefeated wrestling teams in twenty-two years with an over-all record of 138-5-4. His teams won six National AAU Championships and eleven NCAA titles for O.S.U. He produced fifteen Olympic wrestlers and three world champions.

TOBY GREENE: Football player for Phillips University when it was in the Southwestern Conference. Coached at Sayre, Bartlesville, Phillips University and Oklahoma City University. Became head baseball coach at O.S.U. where he won 318 games, having a 22-0 season in 1955. He was the College Coach-of-the-Year in 1960 and inducted into the College Baseball Hall of Fame in 1966. Toby produced 13 All-Americans and 18 All-Big-Eight players in seven seasons.

CARL HUBBELL: Pitched sixteen years for the New York Giants. Appeared in 535 games, winning 253 and losing 154. For five successive years he won twenty or more games (1933-37) with a career high of 28 wins and 6 losses in 1936. He won the National League Most-Valuable-Player Award in 1933 and 1936, and was inducted into the Baseball Hall of Fame in 1947.

HENRY PAYNE IBA: Coached O.C. Classen High basketball to a record of 51 wins and 5 losses. At Oklahoma State University he won 655 and lost 316 through 36 seasons. He has coached thirteen All-Americans. Was coach of the 1964 and 1968 Olympic basketball teams. Won two World Championships, with a record in Olympic play of 18-0.


CLYDE LEFORCE, SR.: All-State end in football and an All-State guard in basketball at Blackwell High School. Considered one of the greatest developers of talent, having an over-all coaching record of 208 wins, 87 losses and 6 ties in football at Pawnee and Bristow.

JOHN LEONARD (PEPPER) MARTIN: Played thirteen seasons for the St. Louis Cardinals. Led the National League in stolen bases in 1933, 1934, and 1936. Was the hero of the 1931 World Series, stealing five bases and hitting .500. Known as the “Wild Horse of the Osage” he later coached and managed teams in Miami, Sacramento, Macon, and Tulsa.

BENNIE OWEN: As football coach at Oklahoma University, in the period from 1908 to 1914 he lost only one game. His record as a coach was 122-54-16. In 1910 he began the direct pass for every play and long punt formations. Was the first coach to extensively use forward passing. Owen Field at Oklahoma University is named for him. He is in the National Football Hall of Fame.

STEVE OWENS: One of the first five players named to the Pro-Football Hall of Fame. Wrestled professionally under the name Jack O’Brien. As head coach of football’s New York Giants he won six eastern division titles and one world title. Considered the greatest of all defensive coaches.


BLOOMER SULLIVAN: Athletic director and basketball coach at Southeastern State College, Durant, for 31 years. Coached thirteen Oklahoma Collegiate Conference basketball championship teams, and seven All-American basketball players. Won over 600 basketball games and participated in fifteen national play-offs. Honored as National Coach-of-the-year in 1957. Inducted into the Helm Hall of Fame in 1959.

JAMES FRANCIS (JIM) THORPE: World’s greatest athlete. Born at Bellemont (near Prague), later resided in Yale.
This famed Sac and Fox Indian was an All-American at Carlisle in 1911 and 1912. Won both the Pentathlon and Decathlon in the Olympic Games of 1912. Played pro baseball for the New York Giants. First president of the Professional Football League.

PAUL ("BIG POISON") WANER: brother Lloyd ("Little Poison") gained immortal fame with the Pittsburgh Pirates. Had a lifetime batting average of .333, and won batting championships in 1927 (.380), 1934 (.362), and 1936 (.373). Led the Pirates to a National League Championship in 1927, and was the league’s Most Valuable Player that year. Also played with the Brooklyn Dodgers, Boston Braves, and New York Yankees. Named to the Baseball Hall of Fame in 1962.

MOSES YELLOWHORSE: Attended Chilocco Indian School. Pitched the Arkansas Travelers to a pennant and a Dixie Series play-off in 1920. Played with the Pittsburgh Pirates in 1921-22 when an arm injury cut short his career. One of the fastest throwers in baseball, and the only full-blood Indian (Pawnee) to play in the major leagues.

PAUL YOUNG: All-State football player at Norman High School. Played for the Green Bay Packers, was an assistant coach at O.U., and coached at Ardmore and Muskogee. His Muskogee High School teams won four state championships. During his tenure he produced more All-Americans than any high school coach in America. In 1958 eleven of his former high school players appeared in post-season college bowl games. He was four times president of the Oklahoma Coaches Association.

Art Griffith: Coached the state’s first wrestling team at Carnegie in 1922. During 15 years as wrestling coach at Tulsa Central never lost a home dual meet. He coached eight National Championship teams at Oklahoma A&M and produced 27 individual National Champions. Art coached the 1948 Olympic wrestling team and was one of the first persons elected to the National Wrestling Hall of Fame.

Gomer Jones: Born February 26, 1914, at Cleveland, Ohio, Gomer Jones was All-American center at Ohio State University in 1935. During his tenure at Oklahoma University (from 1947 to 1971) he was assistant athletic director, line coach, head football coach and athletic director. Line coach without a peer, he developed 18 All-American interior linemen at U.O. Six of them were selected All-American twice.

Jim Lookabaugh: Head football coach at Oklahoma A&M 1939 through 1949. Jim’s record in those years was 58-41-6. He coached the only unbeaten Aggie team in history (1945) which finished 9 and 0. Included in those victories was a 33 to 13 victory over St. Mary’s in the Sugar Bowl. The team also recorded a 34 to 0 victory over TCU in the Cotton Bowl of 1941.

Jim Shoulders: Native of Henryetta, Jim Shoulders was named World Champion Cowboy more times than any other person. Jim won 16 World Championships. He was World Champion Bullrider seven times, World Champion Bareback Bronc Rider four times, and All-Around Champion five times.

Bertha Frank Teague: The most successful girls’ basketball coach in the nation. She coached 43 years at Byng High School and retired in 1969 with her eighth State Championship. She had seven runner-up teams and made 22 state tournament appearances. She compiled a record of 1,152 victories and 115 losses. Her teams in the 1930’s recorded an unequalled 98 straight victories.

Lloyd ("LITTLE POISON") Waner: Born at Harrah, Oklahoma, "Little Poison" and his brother Paul, "Big Poison," became baseball immortals while playing for the Pittsburgh Pirates. Lloyd played professional baseball for 25 years, playing for San Francisco, Boston, Cincinnati, Philadelphia, Brooklyn, and Pittsburgh. He made 223 hits his first year with Pittsburgh (a major league record), had a lifetime batting average of .316 and had 2,459 hits. He is in the National Baseball Hall of Fame.

Bud Wilkinson: Minnesota born Bud coached 17 years at Oklahoma University. His record was 139-27-4 and included National Championships in 1955 and 1956. He won 14 conference titles,
including 1947 through 1959 consecutively. His consecutive winning streak of 47 is still an unbroken record in college football. His teams produced 35 All-American players.

RANKIN WILLIAMS: Born at Bolivar, Missouri, Rankin coached from 1922 until 1965 at Southwestern State College. He coached baseball 43 years and basketball 42 years. He won 28 Oklahoma Collegiate Conference Championships (baseball); also eight in basketball, two in football, six in track, four in golf, four in cross-country, and two in tennis.

Athletes to be inducted into the Hall of Fame each year are selected by 850 electors from all over Oklahoma. Virtually every community in the state is represented among these electors. The electors may nominate athletes to be honored, or may receive nominations from interested persons. The list of those nominated for future consideration includes:

JERRY ADAIR: Oklahoma State graduate from Sand Springs, he was All-Big 8 in baseball in 1958. Played with the Baltimore Orioles and other major league baseball teams.

BOB BASS: Currently coach and general manager of the Floridians, American Basketball League. A Tulsa native, coach at Cromwell High School before going to Oklahoma Baptist University, where he compiled a 275-146 record. While coaching at O.B.U. his teams won six Collegiate Conference titles, qualified for the NAIA district playoffs 13 times and went to the national tourney six times, winning the National NAIA Championship in 1966.

JOHNNY BENCH: Cincinnati’s slugging catcher from Binger won the Most Valuable Player Award in the National League in 1970. He is the youngest player ever to earn this award.

SUZY MAXWELL: Women’s Open Tournament in 1969. Only girl ever to have a golf scholarship at Oklahoma City University. Mrs. Berning won the Women’s Open the year before Orville Moody won the Men’s Open.

BOBBY BOYD: Defensive halfback at O. U., later with the Baltimore Colts. Now on the Colts’ coaching staff.

HARRY “THE CAT” BREECHEEN: Oklahoma rancher, Harry pitched for the St. Louis Cardinals and other major league baseball teams. Was one of the top fielding pitchers in the majors.


BOB BRUMLEY: Major league catcher (Washington Senators) from Lawton.

TOM CATLIN: All-American center at Oklahoma University. Played professional football with the Cleveland Browns.

EDDIE CROWDER: All-American quarterback at O. U. in 1952. Now head football coach and Athletic Director at the University of Colorado.


FLOYD GASS: As football coach and Athletic Director at O.S.U. Gass was Big-8 Coach-of-the-Year in 1970. Lettered four years in football and basketball and three years in track as a Hominy High School student. Lettered in football twice as quarterback and defensive back while a student at O.S.U.

ZIP GAYLES: At Langston University 35 years, Zip Gayles coached football from 1930 to 1957. Won seven Conference and two National Championships. His teams won 146, lost 78 and tied 18. Owner of a multitude of personal honors, coached two All-Conference choices in basketball and a National Champion. He personally gained All-American honors in football and basketball.

DALE HAMILTON: Star gridder at Central State University, later coach, now Athletic Director. His football teams won or shared Conference crowns seven times in 12 years; won 75, lost 25, tied 3. As Central cage coach his first two teams won Conference Championships and the NAIA tournament; won 69 and lost 40. He is in the NAIA Hall of Fame and was honored by the Football Writers Association in 1970.

LABRON HARRIS, SR.: Outstanding amateur golfer from Stillwater. His son, Labron Harris, Jr., is now on the
pro-golfing tour.

MARCUS HAYNES: Was on the famous Langston University team that defeated the Harlem Globetrotters in what started out as an "exhibition" game, but turned into a full-fledged encounter. Haynes later played with the Globetrotters, now has his own touring professional team, the Harlem Magicians.

LEON HEATH: Nicknamed "Mule Train" as a power fullback at the University of Oklahoma. Heath, the Hollis All-American, held a long-standing record of 9.12 yards average rushing.

RALPH HIGGINS: Retired Oklahoma State track coach; star in three sports. Member of the U.S. Track Team in the 1956 Olympics. Coach of the 1960 Olympic Track Team.

DANNY HODGE: Perry "strong man" and All-American wrestler at O.U. where he never lost a match. His 40-0-0 record (including 36 falls) has never been equaled. Was NCAA 177 pound champion three times; voted "Outstanding Wrestler of the Tournament!"

JACK JACOBS: Football star at O.U., especially remembered for his record—9 for 9 in passing for 1,000 percent—in the 1941 Kansas game which the Sooners won 38-0.

BILLY VESSELS: O.U.'s first Heisman Trophy winner. Rated an all-time top rusher and scorer for the Big Red. All-American in 1952, and is among the top five in O.U. record books in four categories.

If you would like to suggest someone not already nominated, send a short biography of your nominee to: Electors Oklahoma Athletic Hall of Fame Box 246 Yale, Oklahoma 74085.
A Young Person's Guide to Oklahoma's

Prehistoric People

BY DON WYCKOFF
For thousands of years before the first white man settled in what is now Oklahoma, people had been living in the Sooner state. These people were Indians, but they were not Cherokee, Choctaw, or any of the tribes who played such an important role in the 19th century settlement of this state. Instead, these people were prehistoric Indians. That is, they lived here before any written records were made of their existence. They seldom receive more than a few paragraphs of attention in a history book. But they were people who lived and died here, who through time developed a variety of distinct cultures and life styles, and who considered this land, Oklahoma, their home. No presentation of Oklahoma's heritage can be complete without recognition of these prehistoric people's existence and accomplishments.

The Study of Prehistoric Man

What we now know about these people comes from some thirty-five years of research in archaeology. The archaeologist's work is like that of a detective; both search for, study, and evaluate clues. The archaeologist is concerned with gathering clues that can answer such questions as who was here, when were they here, how did they live, where did they live, and what happened to them. The archaeologist focuses his attention on the locations, or sites, where people have lived or done something in the past. Locations lived upon could represent temporary camps or permanent villages. Locations where some special activity was undertaken might include places where animals were killed and butchered, where certain wild plant foods were collected and processed, where ceremonies were undertaken, or where stone used for making tools was obtained and worked.

Each location used by prehistoric man has a story to tell. The details of this story can only be learned through careful field research and thorough laboratory analysis. Most field research involves excavations at the locations inhabited or used by prehistoric man. It is an unfortunate fact that those parts of a site which are excavated are destroyed. But this destruction is not altogether loss because the archaeologist's training requires an extensive background in mapping, recording, and photographing what is uncovered. In essence, the archaeologist is trained to put back together what he destroys.

Most people visualize the main activity of an archaeologist as digging. Actually he spends more time in the laboratory cleaning, cataloging, studying, and writing about what was found and its meaning. On the average, from 3 to 5 days of laboratory work are involved for every day spent in the field.

It is in the field that the questions about who, what, when, where, and how are approached, but it is in the laboratory where the answers are sought. The answers come from detailed study of the tools, trash, and other information recovered in the field work. Everything from arrowpoints to fragments of pottery, metal, stone, and bone is evaluated, their quantities and distributions studied, and potential answers formulated. Much of the laboratory work involves assistance from people in other professions. The zoologist helps identify animals from any recovered bones, while the botanist identifies recovered plant remains. A physical anthropologist will study any human remains to provide information about the appearance, health, and cause of death of the people. The geologist will aid in the study of rock materials used by prehistoric man and in determining the origins and ages of soils in which the prehistoric tools and trash were found. Geologists and physicists have also developed techniques, such as radiocarbon and archaeomagnetic analyses, to determine how old a site may be. In the end, the story of prehistoric man is reconstructed by the archaeologists from all kinds of evidence gathered with the help of many specially trained people.

Oklahoma: Looking at the Land in Prehistoric Times

To the modern traveler, Oklahoma is a land of contrasts. In a few hours a person can drive from the forested mountains of southeast Oklahoma to the plains of the panhandle. Such a drive crosses several natural zones. While we may notice differences in the land and its vegetation, we seldom appreciate all the subtle changes between these natural zones. In part, our inability is a result of our own technology. Air-conditioned cars, houses with central heating and cooling, and color television, make living in Broken Bow or Laverne much alike. But what was Oklahoma like when people lived close to the land, when man's technology was more basic and oriented toward existing off the land?

Studies by geologists inform us that Oklahoma's landscape has changed little during the past 50,000 years. It is likely that some river valleys were not as wide or deep as now. But the Ouachita, Ozark, Arbuckle, and Wichita mountains, the hilly country of central Oklahoma, and the high plains of western Oklahoma looked essentially as they do now.

Though the land may not have been different in appearance, research on prehistoric soils and on plants, plant pollen, and animal remains in these soils indicate changes have occurred in the plants and animals distributed over the state. The basic factor behind these changes has been periods of varying, or fluctuating, climate. Such climatic fluctuations affected the ecological situations existing between plants and animals. Obviously, people dependent on plants and animals for food and shelter were also affected. However, rather than changing their distributions or becoming extinct as some plants and animals did, these people adjusted their technologies and ways of life to better utilize and exploit the existing natural resources.

Although this treatise is especially written for young readers, we urge everyone to read it. Little has been written about Oklahoma's archaeology, almost nothing beyond scientific monographs, scattered and specialized papers written by archaeologists to be read by their scientific colleagues.

How much do you know about Oklahoma's archaeological background and horizons? If your answer is "not much," be assured you're not alone. To the best of our knowledge, Oklahoma archaeologist Wyckoff's article here is the most complete, thorough, and up-to-the-minute information on this subject that has been published.
Prehistoric People

In terms of economics, two general groups of prehistoric peoples lived in Oklahoma; those who were farmers, and those who were hunters and gatherers. Generally speaking, those who hunted and gathered their food represent an older time period than those who farmed. But before some misconceptions develop, it is certain the farming people also hunted and gathered food. Also, it is probable that both hunting-gathering people and farming people lived in Oklahoma during certain time periods.

Hunting-Gathering People and Their Cultures

The earliest people known for Oklahoma are hunting-gathering, nomadic groups living here 10,000-20,000 years ago, during the last phases of an ice age that goes back more than 600,000 years. Oklahoma was not covered by an ice sheet or glacier; these were in the high mountains of the Rockies and Sierras, over much of Canada and the northeast United States. Evidence does indicate that Oklahoma's climate was more temperate than now, notably having cooler summers and winters lacking long periods of freezing. With such a climate, there was less evaporation and thus more moisture available for vegetation growth. This increased moisture and moderate temperature apparently resulted in grasslands and pine woods on the high plains (now short grass and sage) while forests in eastern Oklahoma were spruce and pine (rather than oak, hickory, and pine). Among the animals common to Oklahoma during this period were the mammoth, camel, horse, ground sloth, a large form of bison, and a very small antelope.

The earliest Oklahomans depended on hunting for their subsistence, but they undoubtedly collected and ate wild plant foods when such were in season. These economic pursuits usually require a nomadic way of life by small groups of people. They probably lived in small bands of related families; perhaps several groups joined together when conditions or needs allowed. Few camps of these people have been investigated, but there is evidence they built small, temporary houses of pole frame, probably covered with hides or brush. They did make and use fire.

These people lacked metal and the knowledge of working metal. Neither did they have bows and arrows nor ride horses. They hunted on foot and used the spear, probably aided by a hand-held wooden device which increased velocity and distance in throwing spears. The animals they killed provided meat for food; hides for clothing, containers, and shelter; sinew for thread and string; and bones for tools and ornaments. Most of their tools were chipped from stone; these included spearpoints, knives, drills, choppers, and other sharp cutting and scraping implements. They also carved spearheads, knife handles, spearpoints, spearthrowers, and beads from bone and wood. At such industries as flint knapping and carving these early Indians were very proficient. Their tools are extremely well fashioned, showing both a technological competence and an artistic concern for the finished product. While not greatly varied in form, their tools represent a series of implements which were quite functional.

Known locations inhabited by these earliest people are mainly in the western half of the state. Although few such sites have been excavated or intensely studied, most would seem to be small, temporary camps. These sites occur along the rivers and small streams or near springs, sources of water for themselves and suggesting their realization that these water sources were needed by the animals they hunted. Few such sites are visible on the present ground surface. They are in deeply buried soils now being eroded in ravines or lake shores. Tools found at these sites usually consist of stone spearpoints and chipped stone cutting and scraping implements. Because preservation conditions are poor, implements made from bone, wood, or other organic materials have not been found.

Locations where these people killed and butchered animals have been found in western Oklahoma and else-
berries, and other edible plants, processing these plant foods with grinding tools they made from sandstone. Chipped and ground stone axes were tools common to these people, used to obtain plant foods as well as to cut down trees for houses, wooden tools, and firewood. Plants, roots, and other fibers were collected and used in making baskets, nets, and string.

They continued to hunt. Using the spear and spearthrower, they sought such game as deer, raccoon, squirrel, rabbit, and turkey. Bison were killed in western Oklahoma. Groups living in the eastern part of the state fished, using lines with hooks made from bone, and nets with weights chipped from stone. Their chipped stone tools, spearpoints, knives, and scrapers have been found. Stones used for hammers and anvils in flint working occur, also the boat-shaped weights for wooden spearthrowers. They used bone and antler to make spearpoints, needles, awls, punches, and spearthrower hooks.

In seasonal visits through the years, most camps were used over and over. Pole-frame shelters and houses were undoubtedly repeated. Repeatedly used camps have rock-lined fireplaces, roasting pits, and deposits of stone and bone trash. Human burials and, occasionally, dog burials are found. The skeletons of these hunting-gathering people provide information on how they looked, lived, and died. The earliest Oklahoma skeleton, found in a burial in Comanche County, dates around 7,000 years ago. Other skeletons, found in eastern Oklahoma, are around 2,000 years old. The people were of average height and generally good health. A few skeletons show evidence of arthritis, abscessed teeth, and broken, but healed, bones. There is little evidence of warfare between groups. Life expectancy averaged around thirty-five for men and twenty-eight for women. At death, the body was usually placed on its side with knees drawn up in fetal position and buried in a shallow grave, perhaps a symbolic returning of the individual to "Mother Earth."

**Farming People and Their Cultures**

The introduction of farming into prehistoric Oklahoma brought about important changes. The most obvious was a shift from food seeking to food production. Also, the ending of the nomadic way of life and the beginning of living in villages and hamlets, the construction of more permanent houses, and the development of complex societies in which politics and religion became increasingly organized. In Oklahoma, the introduction of farming was also accompanied by the making of pottery and probably the use of the bow and arrow.

The domestication of such food plants as corn, beans, squash, pumpkins, and chile began some 4,000 to 7,000 years ago in various regions of Mexico, Central America, and South America. By 3,500 years ago, there were farming oriented populations in villages in such diverse locations as central Mexico, Guatemala, and Peru. Such people also raised cotton, developed irrigation systems, and constructed centers with mounds, temples, and other special religious and political buildings.

A northward spread of farming was somewhat slow. The southwestern United States was one of the first North American areas where people took up farming. By 500 B.C., groups along the Gulf Coast and in the lower Mississippi Valley were involved. By A.D. 200, this new way of life had spread north up the Mississippi and its tributaries, the Missouri, the Ohio, and the Arkansas. Thus Oklahoma's prehistoric people became acquainted with a radically different life style.

Just when the practice of farming reached prehistoric Oklahoma is uncertain. Current evidence suggests farming people may have been here as early as 2,000 years ago. This period is of interest because it coincides roughly with development of climatic and ecological conditions like those of today. It is not certain who Oklahoma's first prehistoric farmers were, but there are four general regions in which farming people developed; along Grand River in the northeast, in the Ouachita Mountains in the southeast, in the Cross Timbers of the north-central and central parts, and along the Cimarron in the western panhandle.

Some believe that Indian people liv-
Prehistoric People

ing in the panhandle were Oklahoma’s earliest farmers. In fact, they could be the earliest farmers anywhere on the plains. These people inhabited caves in the canyons of that region and probably planted gardens (corn has been found) in the sandy valleys. They made no pottery but did have basketry, sandals, nets, and farming-hunting-gathering tools of stone, bone, and wood. None of the inhabited caves have been studied since the development of radiocarbon dating. Most have been destroyed by vandals and relic hunters, so we may never know how old this culture is.

The earliest farmers for whom there is appreciable information are those who lived in the northeast and north-central parts of the state. These people made pottery and stone tools much like those found at villages of A.D. 100-500 in the Missouri River valley of western Missouri. It is not certain whether such people actually moved into Oklahoma or whether their ideas on farming, pottery, and tool making were adapted by groups al-

ready living here.

It is certain that by A.D. 500 there were farming hamlets along the tributaries and valleys of the Arkansas, Verdigris, and Grand rivers in northern Oklahoma. By A.D. 700, such hamlets were as far south as the Arbuckle Mountains in south-central Oklahoma. These people preferred to live in areas of combined forest-prairie ecologies. In northern and central Oklahoma their small villages occur along the fertile valleys. Such villages apparently had two or three houses (pole-frame in circular or oval outline) and a number of pits used for food storage or trash deposition. Flexed burials have been found near these villages. The people hunted deer, turkey, and small game with spears and the bow and arrow. They gathered nuts, berries, and edible plants and raised corn and probably beans, squash, and sunflowers. Hoes made from stone or fashioned from wood, bone, or shell were used in garden plots. Plant foods were commonly ground in sandstone basins with an abrasive grinding stone. Such food grinding resulted in many sandstone particles which were destructive to human teeth; some skeletons display worn down teeth, often with abscesses. The pottery of these Plains-Woodlands farming people is distinctive; typically egg-shaped in appearance with pointed or slightly flattened bases, having thick walls in which crushed rock served as tem-

per, and decorated by impressing cord-wrapped paddles into the outer surface prior to firing. Some vessels have incised lines or stamped impressions of specially prepared clam shells.

The fourth region to have an early development of farming people was the Ouachita Mountain area, more specifically along those Arkansas and Red River tributaries which drain the Ouachitas. Available evidence indicates this development occurred around A.D. 500 and that the people involved were descendants of the hunting-gathering groups previously inhabiting this region. These people became influenced by agricultural societies in the lower Mississippi Valley. The manufacture of an undecorated, thick, clay-tempered pottery in general flower pot forms was introduced, as was the bow and arrow. Chipped and ground stone axes were used to clear the oak-pine forested valleys for garden plots while hoe blades chipped from stone and attached to wooden handles were the common farming implement. Sites of these people were small and situated along creeks.

In the late prehistoric period of 1,200 to some 500 years ago, there occurred a population growth in parts of Oklahoma. Farming oriented, this growth was concentrated along valleys in two general areas; the plains west of the Cross Timbers, and the wooded valleys of the eastern fourth of the state. Factors behind these increased populations could have involved the introduction of improved strains of corn, an increasingly effective farming technology of the people, and the development of a moist climate more favorable to farming. The ability to produce food dependably undoubtedly played some role in the population increase and in the development of crafts and the political-religious specialization of the period.

Those people living on the plains to the west developed several similar, but locally distinct, cultures based on farming, hunting, and gathering. Apparently they were descendants of those first farmers in the north-central portions of the state. By A.D. 1000 these people were spreading westward along the major river courses. Numerous farming communities are known along the valleys of the Wash-
ita and the North Fork of the Red River in southwest Oklahoma. Other communities took hold along parts of the Red River itself, and on the Beaver River in the panhandle.

The plains farming communities consisted of hamlets (1-2 houses) and villages (3-8 houses) scattered along the fertile bottom lands of rivers and creeks. Houses were square or rectangular. They had walls of upright poles interwoven with brush and covered with baked clay, extended entryways, and interior fireplaces. Interior posts supported a steep thatched roof. Some groups living in the panhandle, influenced by Southwestern Pueblo people, built villages of adjoining rooms with low, rock slab walls.

Common to the plains villages are pits for food storage and trash deposition. Cemeteries usually occur near villages, with individuals buried in flexed and semi-flexed positions. Studies indicate the bodies may have been laid with their heads pointing toward the sunrise. Burials occasionally contain tools or ornaments. There is little evidence of a highly organized political system. Apparently certain individuals were respected within the community, and were sought when important decisions had to be made. There is considerable evidence that these plains farmers had contact and traded with distant people, in the Southwest, in the Northern Plains, and in the Eastern Woodlands.

By this time most hunting was accomplished with bow and arrow. The people hunted bison for food, using its hides, sinews, and bones for a wide variety of farming, hunting, and domestic tools. They also hunted deer, antelope, elk, turkey, other small game, and collected wild plant foods.

In eastern Oklahoma, a culture developed involving the organization of a structured society including political-religious leaders, their attendants, crafts specialists, and the farming majority. These people participated in a Mexico-influenced religion with annual ceremonies relating to planting, harvesting, seasonal changes, life and death. Such ceremonies were undertaken at centers where certain leaders lived and where there were special buildings and settings. Typical of these centers are large earthen mounds, usually built in several stages, which were used as foundations for special buildings (temples, mortuaries, houses for priests and chiefs, etc.) and for the burial of important people. Such mounds were often arranged around plazas.

Throughout the eastern Oklahoma valleys, from about A.D. 1000 to A.D. 1450, there was a pattern of hamlets and villages associated with different ceremonial centers. One such site was Spiro, LeFlore County, which covered some 80 acres and had 9 earthen mounds. Of great religious significance, its recovered artifacts include pipes, earpools, copper emblems and masks, engraved shell dippers, etc. Spiro was an important center of trade as well as the scene of exotic religious ceremonies, maintaining commerce with other political-religious centers in the Eastern Woodlands as well as with Indian groups in the Great Plains.

The basis of all this development was the labor of the farmer. Horticulture was supplemented with hunting. Food was stored and cooked in pottery jars, bowls, etc. Ceremonial pottery, especially, was decorated with intricate designs. Burials of the common farming folk occur near their settlements. Burials of political-religious leaders were more special, often having been buried several times or even cremated, with the remains eventually being deposited in a mound.

**The Early Historic Native People 500-200 years ago.**

During the period from 200 to 500 years ago many things were happening to the native people of Oklahoma. Traditional ways of life were changing. New groups of people were appearing. Areas once densely settled were apparently abandoned. Some of these changes may have resulted from the development of a drier climate which may have forced the plains farmers to move north or east. Such a climatic change should have had less effect on the farming people of eastern Oklahoma, but they also underwent change, abandoning their ceremonial centers, ending their exotic religious practices, and eliminating much of the complex social organization previously found there.

Because of these disruptive and uncertain developments, archaeologists have been unable to identify the various prehistoric cultures with today's Indian tribes. History is of little help. Few European explorers visited the Oklahoma area until after A.D. 1700. Those who were here earlier provided few documents about the native people. However, a few tales seem evident and others may be possible. Those prehistoric farmers living south of the Ouachitas are undoubtedly ancestors to some of the Caddo tribes met by LaSalle (1682) and LaHarpe (1719). By the time of Coronado (1541) the native plains farmers had apparently left western Oklahoma. It is possible these people were ancestral to the Wichita and Pawnee who were concentrated in southern Kansas and southern Nebraska by A.D. 1540.

In the years between A.D. 1600 and 1800, such groups as the Kiowa, Plains Apache, and Comanche came to the plains. The Kiowa and Plains Apache particularly frequented Oklahoma, and in the past few years some village sites in western Oklahoma have been found which may represent these relative newcomers.

**In Summary**

In this general outline of the prehistoric people who lived in Oklahoma it has not been possible to present much on the local variations of culture during the several time periods. More detail is available for some of the groups and cultures discussed herein. For some time periods we have little information. Large parts of the state have received virtually no scientific study.

A major problem has developed in gaining such knowledge. Oklahoma is losing those irreplaceable locations occupied by its prehistoric people. The construction of reservoirs and highways, industrialization, urban expansion, land clearing, and untrained digging for relics yearly destroy sources of information. Most of this destruction occurs before trained archaeologists have a chance to see and evaluate the sites or even salvage data from the more significant ones. The locations of Oklahoma's prehistoric people are a unique natural resource of the state. They merit better protection, preservation, and study. We can learn from these people. They lived here for thousands of years. Will we?
From a few students who enrolled in the first courses less than six years ago, the program this year has drawn over 300 majors — nearly one out of every 10 students on the Durant campus. And they come from every corner of the globe . . .

There's many a school from one end of the country to the other where a young man or woman can learn to fly. But those with an aviation major are few. Southeastern State was the second accredited institution of higher learning in the United States to offer an aviation curriculum leading to the Bachelor of Science degree.

The booming program has grown into a staff of seven full-time teachers and 13 part-time flight instructors. Besides teaching someone how to fly an airplane, Southeastern is now offering a degree in Airframe and Powerplant Technology. Purpose of the A&P program is to provide actual mechanical training, along with related instruction in aircraft management, rigging, and testing.

Students may specialize in General Aviation, A&P Technology, or Airlines Flight Officer programs. Also, a two-year A&P certificate is available. All the aviation courses follow Federal Aviation Administration requirements. Fliers-to-be also get liberal exposure to courses expected of other Southeastern students — English, government, speech, physical education, physics, math through trigonometry, psychology, electronics and descriptive geometry.

Southeastern’s first recipient of a Bachelor of Science in Aviation, James Hanny, is now an Air Force captain stationed in Thailand, flying C-130 transports. Hanny was number two in his flight training class at Wells Air Force Base in Texas, where he was in competition with Air Force Academy graduates.

Southeastern Research Foundation, a private, non-profit corporation, has subleased the Durant airport, and the field is used almost exclusively for the flying program. On a beautiful day the sky south of Durant is filled with planes, ranging from the little two-seated trainers to twin-engine aircraft.

The airport operation provides part-time jobs for some 25 aviation students who work as receptionists, bookkeepers, line personnel and maintenance men. Its success may result in the development of an Airport Management Curriculum. Don Carpenter, Director of Southeastern's Aviation Department, boasts Durant's ideal location for college flight training, with "300 flying days a year."

He also recognizes advantages to the college, and to Oklahoma. Only 25 of the approximately 300 aviation students are from Oklahoma. The remainder come from other states, and from foreign countries. Last year's outstanding aviation student, Chookiat Prathipasen, is from Bangkok, Thailand. "These students bring new viewpoints to the campus," says Carpenter. "When they are graduated they are employed in the aviation industry worldwide. They become good-will ambassadors for Southeastern State and Oklahoma all over the world."

Southeastern has managed to equip much of its Aviation Department from donations, both from private individuals and business concerns. The list of departmental training aids includes a wind tunnel, and a simulator for instrument training.
al aircraft include Cessna 150s and 310s, a Piper Comanche, an Aero Commander 560, a Lockheed Lodestar, a Beechcraft 18, a Citabria, and a de Haviland Beaver.

What do the instructors in the program think about it?

John M. Rutherford, Air Force veteran and former commercial pilot, says he's "enthusiastic." He believes aviation students are different, "They are always highly motivated." As for getting a job after graduation; "It's not easy. Competition in the aviation industry is stiff but our students usually hold their own."

Elmer King, another Air Force veteran and former commercial instructor, is Director of Ground Operations. He comments that members of the faculty enjoy their work. Facilities and faculty at Southeastern are up-to-date. "We're all active in aviation," he says.

The nature of the aviation curriculum raises its cost above that of other undergraduate degrees offered at Southeastern. A Bachelor of Science in Aviation costs about $8,000 above initial tuition and room and board, which still compares favorably with the average cost at private aviation schools. The cost of an A&P degree is lower — $1,600 above the initial fee.

Some students are able to take advantage of the GI Bill. Scholarships and awards are available. A $300 award is given to the outstanding student in Private, Commercial, and Instrument classes. A $150 scholarship is presented to the Flight Instructor and Instrument Instructor outstanding student. Each academic year's overall outstanding student is awarded a Multi-Engine course or $600 toward his next flight course on campus.

Students respond with wholehearted enthusiasm. Al Packard, a senior from Longview, Washington, thinks his money is well spent. "The program offers me several things I wouldn't be able to afford otherwise." Those "several things" include an instrument rating in multi-engine aircraft which costs "less than half what it would elsewhere," and a flight-engineer's second officer rating on a Boeing 727, with classroom instruction at Durant's Eaker Field and flight training at the American Airlines...
Flight Academy in Fort Worth. Al will have logged about 500 hours of flying time when he completes the course.

Derick Segurson, Seattle student, believes coming to Southeastern was the right decision for him. "It's one of the few accredited colleges offering aviation that does its own flying." He likes Oklahoma and is impressed with the amount of aviation industry in the state. "A small college like this provides students an opportunity for personal contact with faculty members."

The national aviation fraternity, Alpha Eta Rho, has 50 members on the Southeastern campus. The Southeastern chapter sponsored the National Intercollegiate Flying Association's winter meet in Durant in 1969. The three-day meet featured competition among the best college pilots in the nation. Power-off and -on landings, navigation, and air drop events were included. A flying demonstration by Bob Hoover, one of America's foremost pilots, was featured. His performance at Eaker Field included the slow roll from take-off, and eight-point hesitation roll, one-wheel landing, touchdown, pull up, slow roll and touch down again. Hoover's most spectacular maneuver was a loop from an altitude of only 50 feet.

The four-day event was concluded with banquet at Lake Texoma Lodge, keynote address by Gen. Ira Eaker, and presentation of awards to the best college flyers in the nation. General Eaker is part of Southeastern's air heritage. He received his first college degree at Southeastern during World War I. After years of service in the Army Air Force through the 20s and 30s he became Commander of the USAF Bomber Command in Europe during World War II.

Alpha Eta Rho this year sponsored a fund-raising event, flying three Cessnas to a shopping center between Sherman and Denison, Texas. There fraternity members answered questions about Southeastern's Aviation Department for live television and radio coverage. High point of the fly-in was the fraternity-sponsored drawing for a prize of ten hours of dual instruction or a charter trip anywhere within 500 miles of Durant. The winner, Elmer Rodgers, president of the Durant Bank and Trust, donated cost of the prize back to the fraternity.

This is the spirit which enables Southeastern's Aviation Department to continue purchasing sophisticated equipment for the steadily increasing number of aviation majors. These students are preparing for jobs in an industry which truly has no place to go but up.
Do you understand “the farm problem?”
You will comprehend some of the implications of that cliche after reading this article.

AGRICULTURE

BY OLIVER S. WILLHAM

The expansion of this nation has paralleled the development of its farming. Agriculture is directly responsible for much of the success of the nation. Over one-third of the jobs in the nation depend upon agriculture and agricultural products for their existence.

Like a ticking clock the decades pass and each one brings changes in the production of food and fiber. Four important revolutions have taken place in the evolution of modern farming in Oklahoma.

The first revolution was the substitution of horse power for human power, which released many man hours of labor from the farm and made it available for other industries. This change took place the early part of the 20th century. Many of the primitive hand tools were still in use as Oklahoma developed its farming in the period 1910-1930.

The second revolution was the change from animal power to mechanical power, and it was accomplished largely in the period following 1910-1930. This change had a profound effect on man's social and economic life. Tractors did not use agricultural products as fuel. Some twenty-five million horses and mules were no longer needed on the farm. The feed they had been consuming could now be used elsewhere, but not in the six million tractors that replaced...
them. This situation created the extremely vexing problem of surpluses.

The third revolution was the application of important scientific discoveries to farming. This change gave to us the most outstanding agriculture the world has ever known. Farmers today constitute only 5.5 percent of the population of the nation, but they are producing more food and fiber than the nation can consume.

The fourth revolution is the management changes that have transpired. Farm units are growing larger. Farming is becoming more specialized. There are no new lands to be exploited, and increased food production must come from innovations. Management, finance, and marketing are vital.

Up to 1920 the nature of farming had changed little in 100 years. Most farmers were self sufficient. Farming was a "way of life." The farm furnished an abundance of recreation which has not been incorporated in our urban society. It is difficult to

Less than two hundred years ago, this nation, now the earth's greatest, was only a group of colonies belonging to one of the world's leading powers of that age. These colonies were made up of a group of hardy pioneers who came in search of freedom. They recognized the God-given power of the mind and discovered that people must be able to act quickly if they are to accomplish much during their brief sojourn on this earth. The colonial leaders were well versed in the events leading up to the signing of the Magna Carta in 1215 A.D. at Runnymede, England. They were familiar with the breakthrough in human rights and individual opportunities that followed. They knew about the order that was established in religion and law, as well as in politics, literature, philosophy, and art.

The government of the United States of America is an experiment to test the fundamental principles set forth in the Magna Carta seven hundred and fifty-six years ago. Examine the Bill of Rights as set forth in the Magna Carta and contrast it with the Bill of Rights incorporated in the Constitution of the United States of America. The founding fathers did magnificently in drawing up this document. This history reveals the type of foundation upon which American agriculture has been established.

Briefly examine an excerpt from a letter written to Joseph Priestley in 1780 by Benjamin Franklin: "We may learn to deprive large masses of their gravity and give them absolute levity for the sake of easy transport. Agriculture may diminish its labor and double its products; all diseases may by sure means be prevented or cured not excepting even that of old age and our lives lengthened at pleasure even beyond ante-diluvian standards. O' that moral science were in as fair way of improvement . . . . . . ."

Is there any doubt about the wisdom of the stalwart pioneers who established this great republic. This nation owes much to such men as George Washington, Thomas Jefferson, James Monroe, Alexander Hamilton, and Benjamin Franklin — to mention only a few.

... Oliver S. Willham
keep from harking back to those good old days even though the labor was back breaking. Soil fertility in the past had largely been supplied by crop rotation. Crop yields were about the same; corn, 27 bushels per acre; wheat, 14 bushels per acre; and cotton, 170 pounds of lint per acre.

The results of the second, third, and fourth revolutions have been a marked reduction in total man hours required in farming. This figure decreased from twenty-three billion in 1930 to fifteen billion in 1950 and to less than seven billion in 1970. The output per man hour of labor doubled from 1930 to 1950 and trebled from 1950 to 1970.

People who grew up on Oklahoma farms in the period 1910 to 1930 will be interested in what has happened to wheat and cotton. The average yield of wheat per acre has increased from 14 bushels in 1930 to 28 bushels per acre, without the assistance of hybridization, which is in the process of being perfected at present. A twenty-five percent increase in yield can be expected when hybrids are in general use. Cotton lint yields per acre have increased threefold since 1930 and now average 515 pounds per acre. In highly specialized regions the yields of lint have increased to 650-1000 pounds per acre.

Combine these improved yields with the labor-saving machinery used in producing wheat and it presents a most pleasant picture — the transition from the hand sickle, to the scythe, reaper, binder, header, and combine.

It has indeed been an interesting experience to have a part in the evolution of wheat harvesting machinery from the sickle to the combine. Modern machinery is extremely expensive. To completely equip a modern wheat farm with machinery; tractors, plows, drills, harrows, trucks and combines costs about fifty to seventy-five thousand dollars. Add the cost of fertilizers, pesticides, herbicides, and marketing, along with interest on capital outlay, and the reader can understand the huge sum the modern farmer must invest in fixed costs. Prior to 1930 the farmer was able to keep about eighty cents out of each dollar of gross income for his profit. Today he has to spend eighty cents out of each dollar grossed for fixed expenses, most of which must be paid regardless of the size of the crop harvested. It is easily understood why the modern farmer has great difficulty surviving a crop failure, because he operates on borrowed capital.

Cotton is being mechanized rapidly. The mechanical cotton picker has displaced many manual laborers and put them on welfare payments. The modern cotton farmer uses many pieces of large machinery in his operations such as plows, cultivators, planters, and pickers. Eight row cotton planters and also eight row cultivators are common. The modern Oklahoma cotton farmer has around forty to fifty thousand dollars invested in machinery. If the cost of seeds, fertilizers, pesticides, and herbicides is added to the interest on the capital outlay, fixed costs mount high.

Prior to 1940 corn was typically grown in a three-year rotation of corn-oats-clover without fertilizer in forty-inch rows planted ten thousand seeds per acre. The yield was about 38 bushels per acre. Today corn is seldom rotated. Leading growers typically fertilize with one hundred fifty pounds of nitrogen per acre and plant twenty-five thousand seeds per acre in twenty-inch rows. Weeds are controlled by herbicides and insects by pesticides. Average yields are ninety to one hundred bushels per acre, with some yields rising to 150 bushels. Yields of one hundred fifty to three hundred bushels per acre are reported. These fantastic increases in corn yields are the results of hybridization, fertilization, spacing, herbicides, and pesticides.

The farmer of 1910-1930 has difficulty comprehending the vast changes in corn production. The limit has not been reached as yet. Imagine a train over twenty-thousand miles long, with
over two million box cars full of corn. Such a train would reach from New York City to San Francisco about five times. This represents the magnitude of the four and one-half billion bushel corn crop in the United States of America. It costs the modern corn farmer about forty to fifty thousand dollars for machinery. Add to this the cost of fertilizer, pesticides, herbicides, seed, and interest on capital outlay, and it is readily understood why the modern corn producer cannot survive a crop failure.

Hay making has been modernized since 1930. The hay crop when ready to harvest is mowed and put in windrows by a side delivery rake. When it is fairly dry but not crumbly, it is baled by a pick up baler, which not only ties the bales but loads them on a truck ready to transport to a place where the excess moisture is evaporated by mechanical means. Modern weather information has been a great boon to the hay farmer. The hay may be fed as baled hay or ground and made into pellets. No longer does the farmer undergo the back-breaking job of storing loose hay in barn lofts. Modern equipment for hay making is expensive but requires only one-third the manpower. The hay farmer must invest fifteen to twenty thousand dollars in machinery.

Fruit production has shared in the agricultural revolutions. Up to 1940 most emphasis in production centered around various cultural practices; variety testing, selection, and the use of herbicides and pesticides. In apples, twelve varieties have emerged and account for ninety percent of the production potential of one hundred and fifty million bushels. The improved pesticides, herbicides, and fertilizers, along with thinning the young fruit, have added greatly to yields and quality. The modern fruit grower does not allow his fruit to fall to the ground, but uses a tree shaker that harvests the fruit at one time. Certain sprays can be used to help the fruit mature uniformly. What applies
to apples also applies to peaches and other fruits. The modern fruit producer is faced with investments in high-priced machinery and chemicals which increase the fixed costs as well as the interest paid on capital outlays.

The feed conversion in broilers and turkeys has increased markedly in recent years. In 1910-1930 farm-produced broilers took sixteen weeks to attain three pounds live weight and required six to eight pounds of feed to produce one pound of broiler. In 1950 three pounds of feed was producing one pound of broiler. Today broiler producers feel that they will soon be producing a pound of broiler for each pound of feed. Turkey producers have also made great strides forward. With mechanization one person can feed and care for sixty thousand to seventy-five thousand chickens.

Other livestock have not had such fantastic reductions in feed conversion. Swine take three and one-half to four pounds of feed to produce one pound of live weight. Cattle take six to nine pounds of feed to produce one pound of live weight. The goal sought by feeders is the reduction in labor. This has given use to the so-called “push button operations.” Today one person can care for five thousand head of cattle in a modern feed lot. Such operations vary in size from one thousand head to one hundred thousand head. The swine industry is developing large scale operations, but they have not made the progress to date that the cattle and broiler producers have made. Large scale feeding operations require much high-priced equipment. The livestock producers are proud of the continued increase in per-capita consumption of meats. Beef is about one hundred ten pounds, pork sixty-three pounds, and poultry thirty-six pounds.

The dairyman has made excellent progress in the efficient production of milk. Mechanization has enabled one worker to handle about seventy-five producing cows. The dairy breeder has long followed a testing program that has enabled him to make substantial progress in developing better herds. Dairymen are the envy of the agricultural world when it comes to wise marketing of their products. The average production per individual cow has increased to the point where only two-thirds as many cows are required as formerly. Modern equipment for a dairy operation is expensive.

By this time the reader readily realizes the modern farmer must be a business man. He has to borrow large sums to invest in machinery for the production, harvesting, and processing of agricultural products. Financing is a large item in farming today. In many cases harvesting machinery is used for only a very short period. This has given rise to much custom work in wheat, corn, and cotton harvesting, and to some extent in fruit production.

The modern farmer realizes his success is closely allied with labor and industry. He must work with both. Farmers are large customers of industries. They spend on the average each year 1.5 billion dollars for tractors, 2.5 billion for machinery and equipment, 1.5 billion for petroleum products, 2.1 billion for automobiles, 3.5 billion for food, 1.6 billion for fertilizer. In addition, they purchase 1/6 of all trucks and spend 850 thousand dollars for household furniture.

In 1972 the farmers will receive about thirty-two billion dollars for products marketed, but the consumer will pay ninety-six billion for these products. This is not realized by the average consumer or housewife.

What lies ahead for the farmer in the next few decades? The demands for food will certainly be increased. The population estimate is two hundred and thirty million people by 1980. There will be a great increase in the younger age group—twenty-five to thirty-four years of age. The age group forty-five to fifty-four years will be small. Agriculture will continue to be the most vital industry on earth.
BOGGY DEPOT

No more hustling stage coach
Jolting to arrive on time,
Or spiral smoke of campfires
Waiting for a wagon train.

Houses and the cabins gone,
Sand has filtered in the ford,
Where stamped the whinnying horses
Now leans a wrenched corral.

Young trees along the old wheels' trace
Obliterate those deepened tracks.
Flowers grow at gravestones
And where men bustled, peace.

... Ruama Hawley

OLD BOGGY DEPOT

Explorers up Red River's shore
(Decades the Civil War before)
Against the Muddy Boggy bore
Their way up to this lovely ground,
Where trees, salt-lick and game were found,
With waterfall and springs around.

Today, the ruins that slumber here
Speak naught of trade-town atmosphere,
Culture, great men, by stage, brought near.
Yet, ruins may, in silence, dream,
Past, vaporized breath of yoked ox-team,
Of pioneer homes, from campfire's gleam.

Past days of white-topped wagon-train,
Wheels, sideboards, red time and again
From white or Indian warfare's stain!
Of lean, tall men in boots and jeans;
In homespun dress, their pioneer queens,
Who made banquets of steaks and beans!

Dream on, old mill beside the trail,
Of knights who rode in buckskin-mail,
Of boat, or prairie-schooner's sail!
And dream again of frontier-dance,
Of homes, embattled Red-man's lance, 
Great riches gained by taking chance!

... Rudolph N. Hill
Midwest City High School Band Director, E. Paul Enix, this year won the "Mac" Award presented each year to the outstanding bandmasters in the nation. Paul Enix has a unique record. His bands at Midwest City have earned superior ratings every year, without exception, during the twelve years he has conducted the M.C.H.S. Band.

At the Central State University Festival the M.C.H.S. Band has won the Outstanding Concert Band Trophy ten of the twelve years it has competed. At the Tri-State Music Festival, Enid, Paul Enix' Midwest City musicians have won the Outstanding Festival Band Trophy three times, including the most recent festival, last May.

Bandmaster Enix has, in thirty-five years of teaching, produced outstanding high school organizations at Konawa, Pauls Valley, Ardmore, and Chickasha; and college organizations at Oklahoma College of Liberal Arts and East Central State College. He is a former member of the Tulsa Philharmonic, and has played professionally in Joplin, Pittsburg, Kansas City, and Miami. He holds a military citation for service as director of the 639th Army Air Corps Band in World War II.

Twenty-seven of his former students now are music educators in various states. Midwest City's splendid new instrumental music building has been named E. Paul Enix Hall in his honor.

10 YEARS AGO IN OKLAHOMA TODAY

"... the prairie schooner has been about the only item with a nautical connotation which had any connection with land-locked Oklahoma," the article began, "... navigation of the Arkansas is still looked upon as a far-out dream ..."

Not now. Arkansas River navigation is reality, and barge tows dock and disembark at the ports of Muskogee and Catoosa regularly.

"Des premiers danseurs et danseuses, maîtres et maîtresses de ballet, des excellentes écoles de danse, sont réunis pour offrir à l'état de l'Oklahoma une opportunité de culture hors pair." If you don't read French, we'll just suggest that you secure a copy of the Spring 1962 issue of Oklahoma Today, turn to page 7, and discover what that's all about.

Included are color scencis from Black Mesa, Fort Washita, Lake Murray, Claremore, Hugo, Devil's Den, Wichita Mountains Wildlife Refuge, and Robbers' Cave.

Dr. Stan Hoig's narrative of the sacred Cheyenne Medicine Arrows is by far the best on that subject we've ever encountered. The Oklahoma Scrapbook section contains fine poetry by Freda Stansberry, Clara Ross Baxter, Catherine Clark, Patricia Paden Hammond, and Maude Rubin. Books reviewed are The Chickasaw Rancher by Neil R. Johnson, and Atlantic Crossings Before Columbus by Frederick J. Pohl.

Elizabeth Stabler's fine article on the University of Oklahoma Press closes the issue with a thought provoking quote from retired press director Savoie Lottinville, "... an aggressive center of intellectual and literary expression can as easily be created in Oklahoma as in any other region of America." He has been proved right by several Oklahoma colleges and universities. You can acquire the collector's item Spring 1962 issue of Oklahoma Today by sending $1.50 to Oklahoma Today, Will Rogers Memorial Bldg., Oklahoma City 73105.
which state histories, national histories and, eventually, continental and world histories are written.

In opposite ratio to the value of the work, the grassroots historian seldom receives recognition or credit. The latter is reserved for the later historian who distills grassroots history into textbooks or historical tomes to be widely read and acclaimed.

So we here set aside and acclaim the meritorious work of a dedicated group of Oklahomans in Beaver County. Knowing they had an extraordinary story to tell, they took a Cultural Arts Committee suggestion to "write the history of your county."

They formed an Historical Society, incorporated it, elected Mrs. Berenice Jackson president, and were well underway on receiving their Charter from the Secretary of State. Home-makers Clubs in the various areas of the county set about gathering historical material which resulted in the publication of two thick volumes which must constitute the most complete history of any single county in Oklahoma.

Board members Otto Barby, Pauline Bond, Rhea Bridgewater, Carolyn Conner, Pauline Cross, Gladys Eagan, Josh Evans, Coral Gardner, Clarence Henricks, P. O. Hibbs, Leota Hodges, John Little, Thelma Long, Verl Oyler, Barbara Patzkowsky, R. R. Penner, Nellie Pierce, Ralph Rector, Karen Underwood; and Willis Lansden, Kristi Hardy, Robbi Day, Linda Gordon, and others, invested an astounding total of volunteer hours and miles traveled in producing the two historic volumes, which sell for $15 each.

Almost 7000 copies of the volumes were produced, and most of them have been sold. Beaver County's diligent historians received the Oklahoma Extension Council's Cultural Arts Award for their project, but the real reward for their work lies in the future use of it, which will be harvested for many years to come.

On April 29-30 they'll be meeting in Oklahoma at Great Salt Plains State Park. This meeting was organized by an enthusiastic Oklahoman, Mrs. Martha Rowland of Oklahoma City. Oklahoma Today hopes the Loners on Wheels will enjoy Oklahoma Northwest, Alabaster Caverns, Little Sahara, Boiling Springs, the Glass Mountains, Salt Plains selenite crystal hunting, the abundance of bird and wildlife there, and the State Park's splendid camping area.

If you own a camping vehicle, have become a "loner" and feel out of place traveling with clubs made up of couples and families, why not drift up to Great Salt Plains Park the last weekend in April. Try out the welcome of the Loners on Wheels. If you are a single person, of any age, and think you might enjoy life on wheels, here is the best chance you're likely to have to talk with people who know and can help you decide if, and what kind of vehicle you want to buy.

LONG AGO ON SUNDAY

Sunday was special for Pete and me in his friendly hay-sweet home, which also smelled of leather harness and dampened barnyard loam.

On Sunday I washed and curried him, a Sabbath task allowed.

Then bound for church, curried, starched, how Pete and I were proud.

LONERS ON WHEELS

Loners on Wheels is a nation-wide organization formed in 1970. It is for recreation vehicle-trailer-camper folks left, by death or divorce, to travel alone. Started less than two years ago its membership had grown from 20 to 200 by the time we heard of it, has now passed 500 and is well on its way to 1000. It may even have passed that by now.

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Lloyd Stone

NEW CAMPUS ARCHITECTURE

SHEPHERD CENTER, CAMERON COLLEGE, LAWTON.
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