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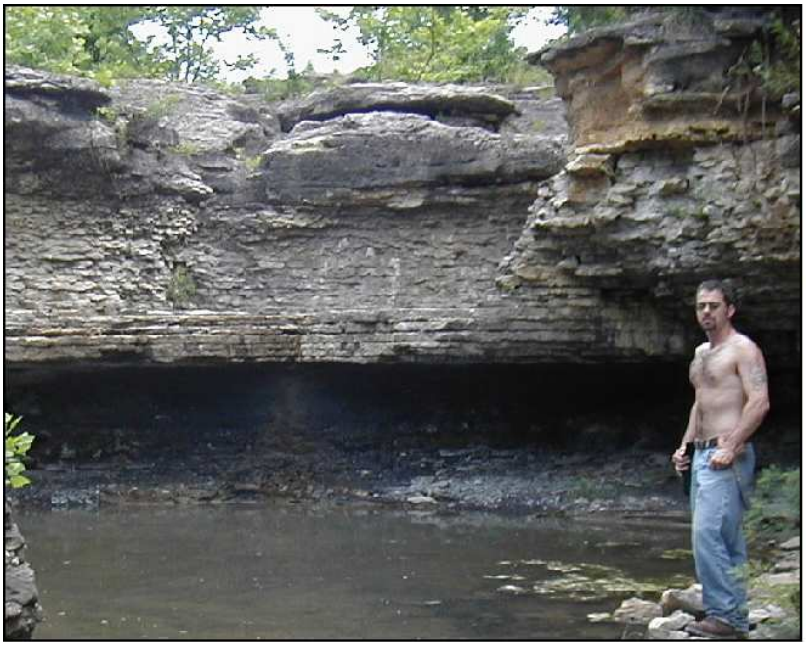

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ON THE COVER

Field photos of the LHPH depositional sequence. Left: Recessed thin black shale of the Heebner marine condensed section (lower), thin-bedded wackestone (middle) as the foundation of the phylloidal algal mound (upper) of the Plattsmouth Limestone of the lower highstand systems tract. Sedan Lake spillway, SE Kansas. Right: An upward-coarsening and thickening shale-sandstone prodeltaic-delta front successions of the Heebner marine condensed section, central Osage County, NE Oklahoma. See the related paper in this issue for detailed discussions. Photos by W. Yang.

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KANSAS GEOLOGICAL SOCIETY TECHNICAL PROGRAMS

March 9– Mike Everhart, Adjunct Curator of Paleontology, Sternberg Museum, "Oceans of Kansas, the Rest of the Story"

March 16– Dr. Jay Price, WSU, will discuss his new book on Oilhill and El Dorado Field.

March 23 — James Bogarrdus, "Update: Evolution of Land Seismic Acquisition: A 3-D Case Study from the Wichita Mountain Front, Oklahoma" (Joint meeting with the Geophysical Society of Kansas)

April 6— Merle Grabhorn, Newfield Expl., "The Opening of the Mid-Continent: A Pictorial History" (*Joint meeting with GSK*)

April 13— Dr. Arcangeio Sena, Veritas, Houston, "Case Study: SAGO Steam Flood Project Using Simultaneous Inversion of Pre-Stack Seismic Data" (*Joint meeting with GSK*)

April 20— Dr. Marvin Carlson, Nebr. Geological Survey, "Reinterpreting Nebraska's Structural Framework-New Geometry, New Exploration, New Reservoirs", Co-author Bill Sydow

May 4— Dr. Lynn Watney, et al; no title yet

May 11— Bob Westermark, Grand Oil, Subject will be on horizontal drilling.

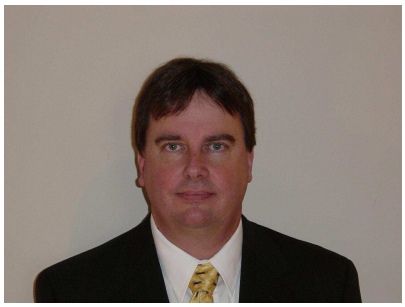
May 18— Dr. David Wald, USGS, Denver, "Rapid Post-Earthquake Information from the US.G.S National Earthquake Information Center"

All KGS technical meetings are held at 12:30 p.m. in the Bank of America Auditorium unless otherwise noted. Note: For those geologists who need 30 points to renew their licenses, there will be a sign-in sheet at each presentation and also a certificate of attendance.

CALL FOR PAPERS

The Kansas Geological Society Bulletin, which is published bimonthly both in hard-copy and electronic format, seeks short papers dealing with any aspect of Kansas geology, including petroleum geology, studies of producing oil or gas fields, and outcrop or conceptual studies. Maximum printed length of papers is 5 pages as they appear in the Bulletin, including text, references, figures and/or tables, and figure/table captions. Inquiries regarding manuscripts should be sent to Technical Editor Dr. Sal Mazzullo at salvatore.mazzullo@wichita.edu, whose mailing address is Department of Geology, Wichita State University, Wichita, Kansas 67260. Specific guidelines for manuscript submission appear in each issue of the Bulletin, which can also be accessed on-line at the Kansas Geological Society web site at http://www.kgslibrary.com

PRESIDENT'S LETTER



Dear Members,

The KGS had a great turn out this year for our annual banquet. Doug Davis did an outstanding job and I think all in attendance had a wonderful time. Summer is quickly approaching so get ready for the upcoming KGS events. May 5th we will have the Fishing Tournament at Kingman State Lake. Then plan on attending the KGS golf tournament in June (date to be announced) and the picnic in August.

The KGS is planning a fall field trip to Lawrence to visit and tour the Kansas Geological Survey facilities. We hope to make this a bus trip, to make it easy on everyone. There will be more information on this as it develops.

I would like to take this opportunity to encourage those of you who do not belong to the Kansas Geological Foundation to consider joining. The Foundation does so much to promote our industry through its Speaker's Bureau and Scholarship & Grants program and it needs your support. Please consider a $50.00 membership (tax deductible) and be a part of supporting these programs.

It is my understanding that over 13,000 people attended NAPE in Houston on February 2nd & 3rd with many prospects bought and sold. This year the AAPG convention will be held in Houston, April 9th – 12th and the KGS/KGF will have a booth. Please stop by if you are attending.

Respectfully submitted,
Chuck Brewer

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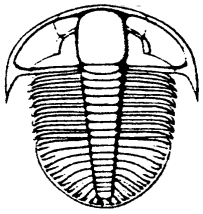

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***Bulletin* committee members and PhD's in Paleontology are prohibited from entering.**

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Darren Brown
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Joshua Kull
Kent Matson
Cina Poyer
Stan Sansone

Welcome to the Society.

FROM THE MANAGER'S DESK

Dear Members,

As we approach the spring months, we are finding the KGS library is doing very well. Sales are up and we are doing our best to keep our costs down. The new software for the Walters Digital Library has had about two months of usage now and we are getting a lot of response from our users…….some love it, others not so sure about the changes and several are having issues with printing & saving. Please know that we are still fine-tuning and will continue to address these issues. I only ask that if you are having any issues with the new software, please let me know so that I can address the problems.

I hear things through the grapevine but I would much rather hear it directly from the person having problems. We are up to 131 digital members now and still growing. I think most agree that this is a wonderful addition to the Kansas Geological Society Library.

We had a great turnout for the Annual Banquet this year with 145 people in attendance. We inducted Fred Stump into the Honorary Member club and also honored Rhonda Wisley for 20 years of working at the Library! We had 13 members make the 50 year mark of belonging to the Society with 6 in attendance to receive their 50 year pins. Please thank Doug Davis for putting on such a wonderful event for us. He always does such a great job! Check out the photos from the banquet in this issue.

The next event coming up will be the KGS Fishing Tournament and the committee has set the date of May 5th. Please watch for more information on this event in the next issue of the Bulletin.

The KGS will have a booth again this year at the annual AAPG convention in Houston. If you are planning on attending the convention, please stop by and say hello. The dates for AAPG are April 9th – 12th.

Please notice that this issue of the Bulletin contains a membership application for the Kansas Geological Foundation. It is membership dues that help provide several university students in Kansas with scholarships each semester. If you do not belong to the Foundation, please consider joining, as this is one of the best ways to promote a greater understanding of geology and its affiliated professions.

As always, please let me know of any concerns or suggestions you might have.

Respectfully submitted,

-Rebecca Radford

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Coeval Deltaic, Platform Carbonate, and Condensed Shelf Sedimentation, Upper Pennsylvanian Leavenworth Limestone-Heebner Shale-Plattsmouth Limestone -Heumader Shale Depositional Sequence, SE Kansas and NE Oklahoma

– Part I (Stratigraphic Architecture) -

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INTRODUCTION

The hierarchical Upper Pennsylvanian Oread depositional sequence consists of three high-order cycles (Wanless and Shepard, 1936). The middle sequence is the Leavenworth Limestone-Heebner Shale-Plattsmouth Limestone-Heumader Shale (abbreviated as LHPH) sequence (Fig. 1). Previous studies have demonstrated its "layer-cake" stratigraphy in the mid-continent (e.g., Wanless and Shepard, 1936; Moore et al., 1958; Heckel, 1977, 1991). However, in-depth study of its stratigraphic architecture across the shelf-to-fluvial transition from Kansas to Oklahoma has been limited (Carter, 1954; Evans, 1967; Toomey, 1969; Wolf, 1984; Watney et al., 1995).

We documented in detail the abrupt facies and thickness changes of Heebner marine condensed section (mcs) and the Plattsmouth lower highstand systems tract (HST) of the LHPH sequence from SE Kansas to NE Oklahoma, using 55 outcrop sections and 100 wells (Fig. 2). Stratigraphic correlation and depositional systems interpretation established the 3-D stratigraphic architecture of the sequence, which may serve as a model for subsurface interpretation of depositional systems and sequence stratigraphy during hydrocarbon exploration.

FACIES CHARACTERISTICS OF THE LHPH SEQUENCE

Transgressive Systems Tract of the Leavenworth Limestone and Underlying Units. The TST of the LHPH sequence overlies calcareous paleosols of the Snyderville HST of the underlying sequence (Figs. 1, 3). The basal unit is a thin (5-25 cm), persistent conglomerate-arenite composed of coarse-sand to fine-pebble-size calcitic clasts, quartz sand grains, and some marine fossils. The clasts are nonfossiliferous, micritic, and well rounded, with internal radiating, concentric, or irregular cracks filled with sparry calcite. They were probably derived from soil nodules of the underlying paleosols by wave erosion on the upper shoreface during shoreline transgression (Yang, 2004). The conglomerate is the first transgressive lower shoreface-inner shelf deposit; and its base is a merged surface of wave ravinement, first transgression, and sequence boundary (Yang, 2004).

The overlying dark gray shale contains upward-increasing marine fossils and limestone lentils (Fig. 3A). Its base and top are sharp. It was interpreted as inner shelf deposits. The overlying Leavenworth Limestone is a dark bluish gray wackestone, containing fusulinid, crinoid, shell fragments, and rare oncoids and ammonoids (Fig. 5A; Toomey, 1969). Fossil pyritization is common. The limestone is tabular and bioturbated with persistent thickness (40-50 cm) and lithology on the midcontinent shelf (Toomey, 1969). In the southernmost outcrop, it changes to argillaceous and arenaceous wackestone, interbedded with calcareous shale, indicating interfingering between carbonate and marginal marine siliciclastic

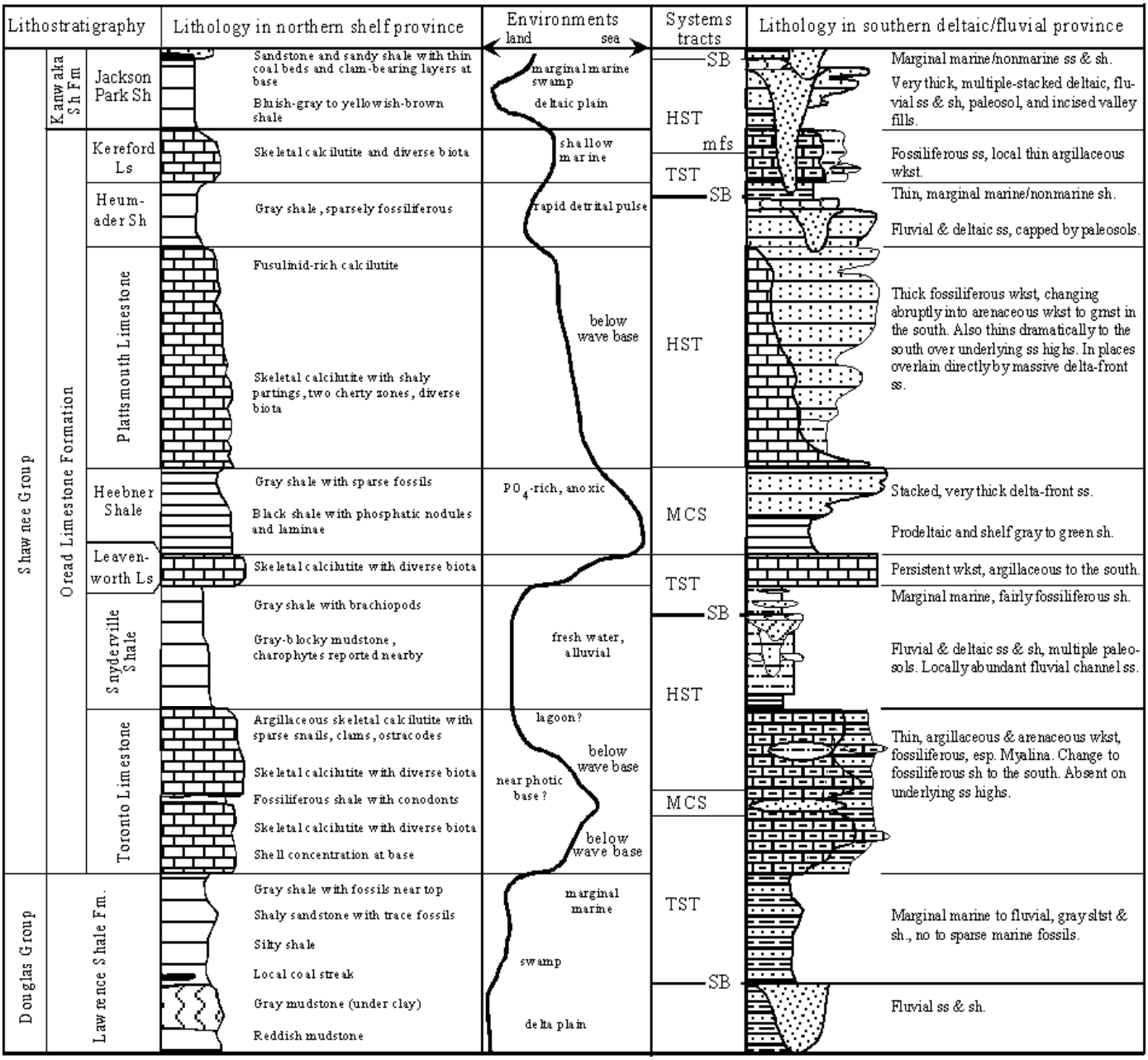

Figure 1. Lithostratigraphy, sequence stratigraphy, lithology, and environmental changes of the Oread sequence in the northern shelf and southern deltaic-fluvial provinces in SE Kansas and NE Oklahoma, respectively. No vertical scale intended. Shelf stratigraphy is modified from Heckel (1994) with reference to Moore et al. (1951).

sediments derived from the south. We speculate that the shelf relief was minimal, the siliciclastic source was far away, and environmental conditions were uniform during Leavenworth deposition, caused by rapid marine transgression on a peneplain. The common framboidal and replacive pyrites suggest a dysaerobic bottom condition, indicating the onset of shelf anoxia.

Marine Condensed Section of the Heebner Shale. The Heebner Shale mcs has two contrasting facies tracts: an anoxic shelf shale tract in SE Kansas and a deltaic tract in NE Oklahoma. In SE Kansas, the Heebner is 1-3 m thick and consists of three lithofacies: The lower thin (10s cm), gray, fossiliferous shale, the middle black, fissile, organic-rich shale that is 50-150 cm thick and contains phosphatic nodules and no macrofossils, and the upper greenish gray, fossiliferous, calcareous shale, commonly less than 1m thick (Fig. 5A; see also Evans, 1967). The Heebner has a gradational contact with overlying Plattsmouth Limestone. It is characterized by an extremely high value on gamma-ray logs. Heckel (1977) interpreted that the shelfal Heebner Shale was deposited on an anoxic to dysoxic deep (~ 100 m) shelf during sea-level highstand. The thin, persistent shale suggests starved sedimentation, interpreted as a marine condensed section. The three lithofacies correspond to the onset, peak, and diminish of anoxic condition on the shelf.

In NE Oklahoma, the Heebner Shale is thick (10-30 m) and typically contains one or more upward-coarsening and thickening successions (Figs. 3B, 4A). The basal part is 2-4-m-thick yellowish green to gray clay shale with some brachiopods, and has a high value on gamma-ray logs. It grades upward into a thick interval of gray shale with abundant disseminated plant remains, upward-increasing siltstone, and rare shale diapirs and micro-faults. The upper part is composed mainly of thick (10s cm to 3 m) sandstones interbedded with shale. The sandstones are fine, well sorted and rounded, mottled/bioturbated, well-laminated or convoluted, and are persistent for 100s m on outcrop. They contain rare shell fragments and molds and concentrated plant remains on bedding planes. The upper contact is sharp (e.g., Fig. 4).

The basal shale is interpreted as shelf deposits (Fig. 3B). The middle gray shale and upper sandstone-rich intervals are interpreted as prodeltaic and delta-front facies, respectively. The facies succession suggests multiple episodes of deltaic progradation from the south.

Lower Highstand Systems Tract of the Plattsmouth Limestone. The Plattsmouth Limestone contains four types of lithofacies in SE Kansas (Fig. 3A; Wolf, 1984): 1) Wackestone facies with diverse fauna. Beds are thin-medium wavy bedded and 2-15 cm thick. This facies is 1-2 m thick with a sharp top, and constitutes the “foundation” for the overlying phylloidal algal mound facies. 2) Phylloidal algal mound facies. It is composed of wackestones with common spar-filled vugs. Phylloidal algal plates form a "corn-chip" texture and mix with crinoids, brachiopods, and fusulinids. Beds are 15-40 cm thick, offlapping, lenticular, or nearly vertical along mound walls. This facies is 2-6 m thick. 3) Grainstone and packstone facies. Beds are thin to medium; grains are commonly abraded and blackened. The facies may have a thin ferruginous rudstone cap composed of highly-altered large and thick mollusc fragments. The facies has a sharp to gradational base and a sharp top. It is less than 1 m thick and most common in the southern part of SE Kansas. These three lithofacies form the typical succession in the algal mound facies tract. 4) Muddy wackestone facies. It has intact or fragmentary bivalves and minor crinoid, fusulinid, and phylloidal algae and, in some cases, shale partings. It is thin (2-3 m) and persistent and occurs landward of or in between

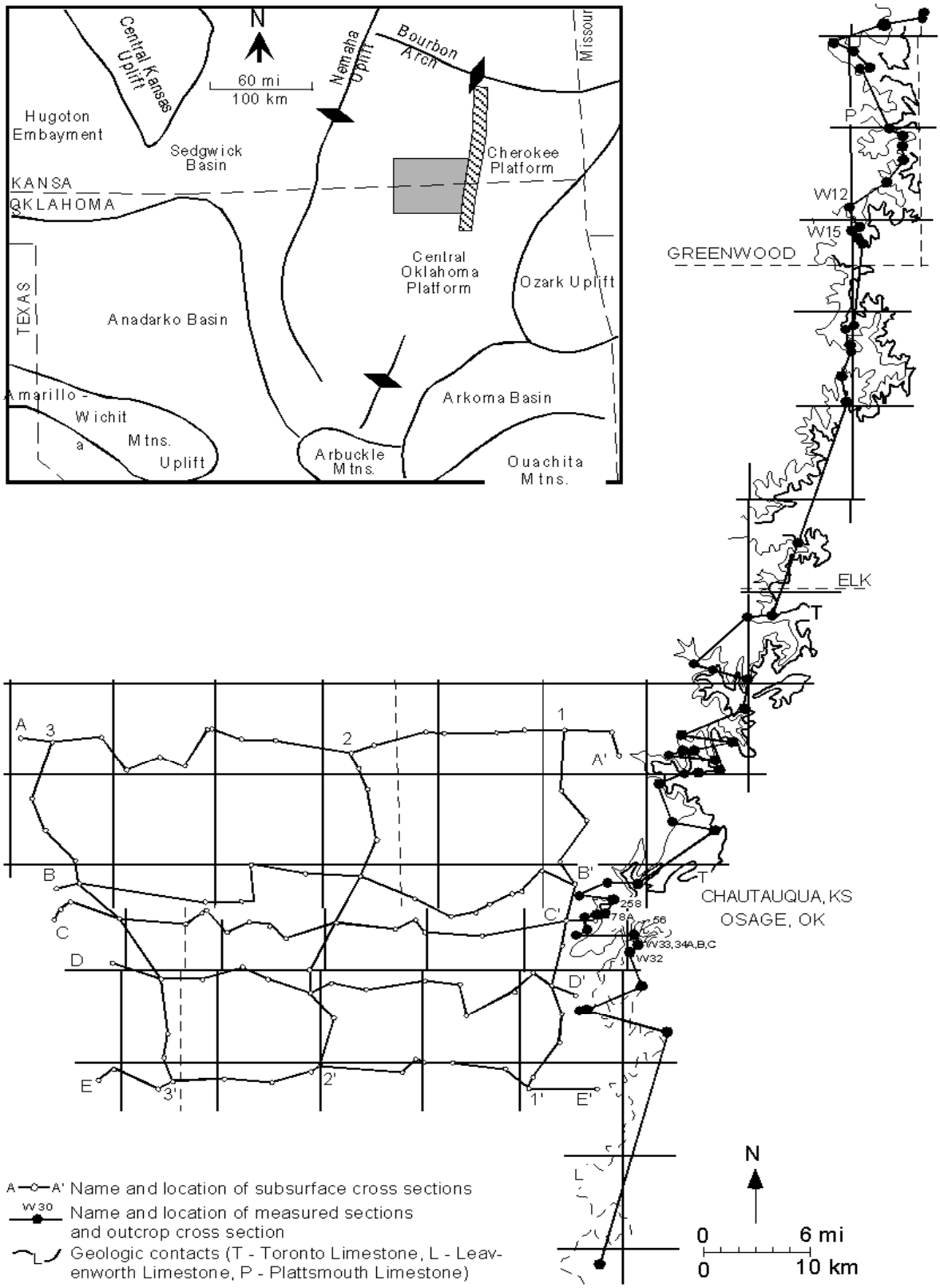

Figure 2. Location of outcrop sections, wells, and cross sections in this study. Geologic contacts from Ross (1991) and Bingham and Bergman (1980). And major tectonic elements in Kansas and Oklahoma and the outcrop (hachured) and subsurface (shaded) study areas (inset), modified from Mazzullo et al. (1995). Sections referred in the text are labeled.

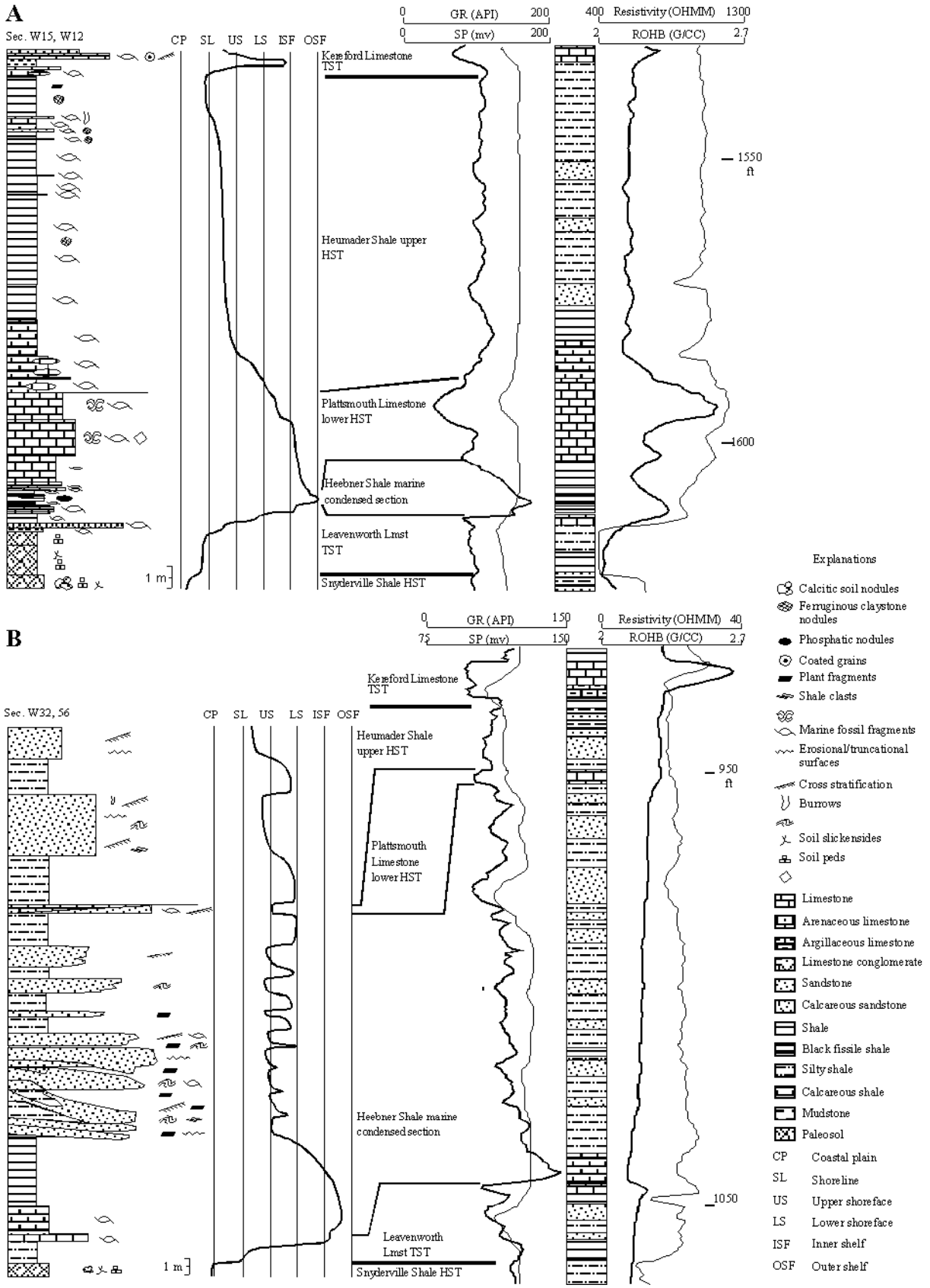

Figure 3. Typical lithologies and log signatures of the LHPH sequence in (A) the shelf province in SE Kansas and (B) in the deltaic province in NE Oklahoma. See Fig. 2 for locations.

phylloidal mounds. The Plattsmouth Limestone has a low gamma-ray and high resistivity log signature (Fig. 3A).

The facies succession in the mound facies tract was interpreted as upward shallowing (Fig. 3A; see also Heckel, 1984). The "foundation" facies was deposited in a relatively deep environment near or below normal wavebase. Fast growth of phylloidal algal mounds caused shoaling. The capping grainstone facies was deposited in a high-energy shallow subtidal to intertidal environment, signifying the final termination of carbonate sedimentation during slow sea-level fall. The muddy wackestone facies was deposited in the low-energy inner-shelf and lagoonal environment, as indicated by the restricted fauna, landward occurrence, and presence of shale partings. It also occurs in inter-mound area where shale partings are absent.

In NE Oklahoma, the Plattsmouth Limestone contain three lithofacies: 1) Arenaceous packstone/grainstone and fossiliferous sandstone facies. It contains mixed skeletal and fine quartz (5-90%) grains (Fig. 3B). The skeletal grains are highly abraded and composed mainly of fusulinid and crinoid. Low-angle tabular cross bedding or bioturbation may dominate. Fossiliferous sandstones are clean and commonly grade upward or laterally into packstone/ grainstone (e.g., Fig. 4B). The facies is 10s cm to 3 m thick and thins southward. It is the most common facies. 2) Argillaceous wackestone to packstone facies. It consists of 5-30% siliciclastic mud and diverse skeletal grains, and is highly bioturbated. It occurs sparsely in the lower Plattsmouth. 3) Limestone conglomerate facies. It is ~30 cm thick, exposed in a 20-m outcrop at Section W34A and changes laterally into sandstone to the north and arenaceous grainstone to the south (Fig. 4B). Clasts are angular to rounded, granule to cobble-size wackestone intraclasts with common soft to semi-solid grain deformation. Some well-rounded limestone extraclasts and common highly-abraded fossil fragments are present. The conglomerate is clast-supported with a fine quartz matrix. The rounded corners of some intraclasts suggest short-distance transport. Weak clast-rich and matrix-rich interlaminations and large low-angle tabular cross beds in adjacent conglomeratic sandstone were observed.

The sandstone and arenaceous packstone/grainstone were deposited in a high-energy subtidal environment (Fig. 3B). Some quartz grains may have been reworked from the underlying Heebner deltaic sandstones. The argillaceous wackestone was deposited below or near normal wavebase when sea level was still relative high and shoreline was far enough so that only siliciclastic mud could have been transported to the depositional site. For the limestone conglomerate, its limited occurrence in a narrow trough, rapid lateral facies change (Fig. 3B), and cross beddings suggest syndepositional erosion, transport, and deposition of semi-consolidated carbonate sediments by an approximately E-W strong current. In the subsurface, impure limestones are thin and have a moderately low gamma-ray and moderately high resistivity signature (Fig. 3B).

Upper Highstand Systems Tract of the Heumader Shale. The Heumader Shale in SE Kansas grades upward from thick gray fossiliferous shale to thin gray to brown nonfossiliferous shale, mudstone, siltstone, and minor sandstone (Fig. 3A). Ferruginous claystone nodules are common. Some soil slickensides, peds, and calcitic nodules are present in the upper part. This unit is characterized by a moderately high gamma-ray and low resistivity signature, showing slightly upward-coarsening and/or upward-fining trends in the subsurface (Fig. 3A). It was interpreted as marginal marine to coastal plain deposits.

In NE Oklahoma, the Heumader consists of shale, siltstone, and sandstone, forming two

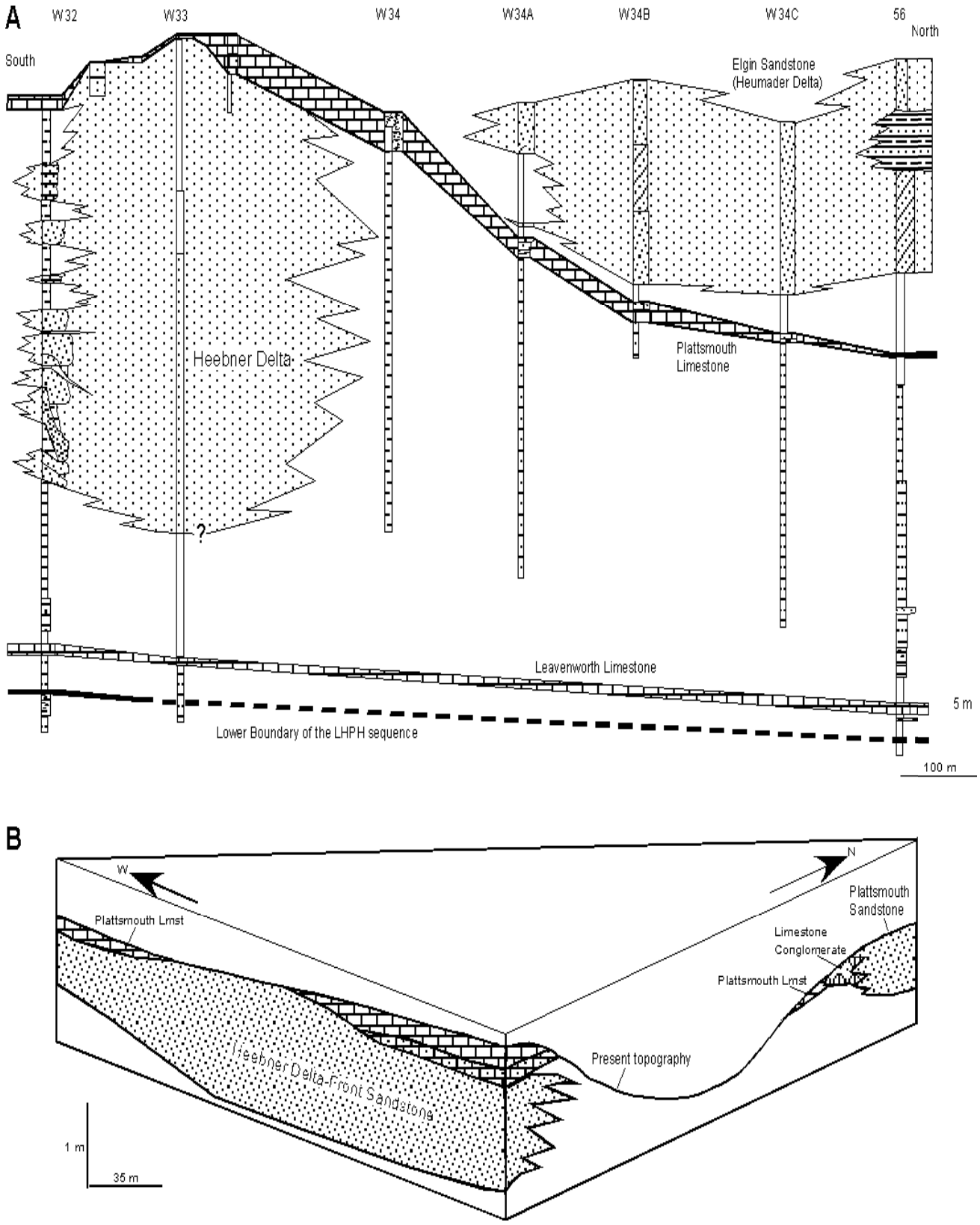

Figure 4. (A) Outcrop structural cross section showing facies architecture of the LHPH sequence in the deltaic province and the shelf-deltaic transition zone. See Fig. 2 for locations. (B) Close-up facies architecture of Heebner delta and Plattsmouth limestone, conglomerate, and equivalent sandstone in the vicinity of sections W32, W33, and W34 in (A).

to three upward-coarsening and thickening successions (Fig. 3B). In a few cases, thick (1-2 m), laterally continuous fine sandstones overlie the Plattsmouth Limestone directly. The upper part, where exposed, contains variegated blocky mudstones with calcitic nodules and root molds. This unit was interpreted as upward-shallowing prodeltaic, delta-front, and delta-plain deposits formed during multiple episodes of deltaic progradation.

STRATIGRAPHIC ARCHITECTURE OF THE LHPH SEQUENCE

The stratigraphic architecture of the LHPH sequence was established by the geometry and boundary relationship of systems tracts within a sequence stratigraphic framework. They are time-stratigraphic slices, as the products of successive depositional events. Each tract consists of laterally juxtaposed and vertically stacked lithofacies and depositional systems. Their correlation within each tract delineates facies geometry and distribution on cross sections and isopach maps. Facies stacking displays the 3-D stratigraphic architecture of facies and facies successions and provides a time line of depositional events.

Transgressive Systems Tract. The TST is characterized by its persistent thickness and facies, and tabular geometry (Figs. 5, 6, 7A). The sharp base between the widespread soil nodule conglomerate and the underlying paleosols suggests extensive transgressive wave ravinement. The sharp flat upper boundary suggests abrupt termination of carbonate production. The geometry and fine-grained lithology of the TST suggest slow uniform shelf deposition during fast shoreline transgression and shelf deepening on a vast low-relief peneplain.

Marine Condensed Section. The anoxic shelf facies and the deltaic facies of the Heebner mcs juxtapose across a narrow zone (Figs. 5, 6, 7B). The former is widespread and persistent, with a sharp base, a gradational top, and fairly sharp internal contacts, suggesting rapid changes between dysoxic and anoxic conditions on the shelf (Fig. 4A). In NE Oklahoma, the upward-coarsening and thickening pattern of deltaic facies indicate systematically changing environments (Figs. 4B, 5, 6, 7B). Prodeltaic and shelfal shale dominate in the lower mcs and in the northern part. Delta-front and interdeltaic sandstone and shale dominate in the upper mcs and in the southern part. The thickness increases southward from 10 to 30 m, and is the greatest in depocenters of stacked delta-front sandstones and smallest in shale-rich prodeltaic and interdeltaic embayment. E-W facies and thickness variations are secondary. Differential compaction had probably created significant syndepositional topography. Multiple episodes of deltaic progradation had occurred, with a maximum of nine episodes interpreted on Section W32 (Fig. 4A). The orientation of isopach thicks (Fig. 7B) suggests that initial northward progradation was subsequently diverted to W and NW. The sharp base suggests abrupt termination of carbonate production and onset of siliciclastic influx. The sharp top indicates rapid termination of deltaic progradation, probably caused by greatly diminished sediment supply or diversion of depositional loci outside of the study area.

The shelfal to prodeltaic facies change and thickening occur in a 2-3 km zone (Figs. 5, 6, 7B). For example, the 3-m thick, black phosphatic fissile shale in Section 258 changes to a 12-m thick, greenish gray, silty fossiliferous shale in Section 78A in 2 km (Fig. 2). The transition zone extends approximately E-W for ~ 60 km (Figs. 2, 9B). Its southern border is a steep prodeltaic slope with a maximum angle of 0.5^{o} (after decompaction, assuming a 50% original porosity), which is much greater than that of most modern prodeltaic slopes (commonly 0.1-0.2^{o}). Considering that most Pennsylvanian deltas on the shallow mid-continent shelf are thin and small, the Heebner slope is abnormally steep. Last, stratigraphic correlation indicates that

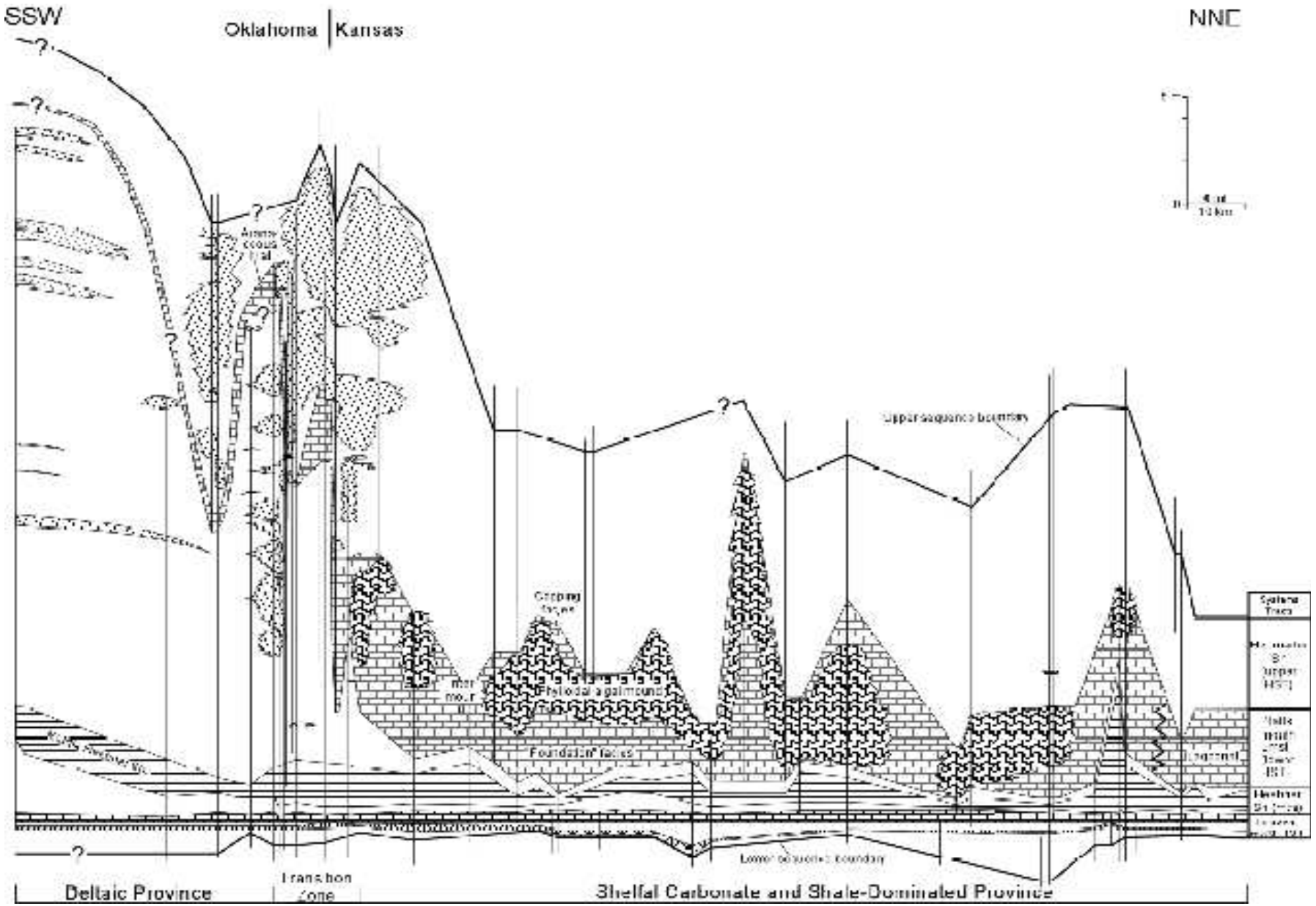

Figure 5. Simplified stratigraphic cross section and facies interpretation of the exposed LHPH sequence showing the stratigraphic architecture. Stratigraphic datum is the base of Leavenworth Limestone. Drastic facies and thickness changes occur in a narrow zone. See Fig. 2 for locations.

thickening of the mcs occurs mainly in the upper fossiliferous shale facies (Fig. 5).

Lower Highstand Systems Tract. The lower TST has a platform carbonate facies tract in SE Kansas and a nearshore arenaceous and argillaceous carbonate facies tract in NE Oklahoma (Figs. 5, 6, 7C). The former has a landward inner-shelf-lagoonal belt and a basinward phylloidal algal mound belt, both NE-SW-oriented (see also Wolf, 1984). The lagoonal wackestones are well bedded and persistent, with gradational base and top and, presumably, a gradational lateral contact with the algal mound facies. The extensive algal mound facies belt is 3-11 m thick, thinning to E and N and thickening to W and S, and has sharp base, top, and internal facies contacts. It has gentle basinward and steep landward slopes (Figs. 5, 6, 7C). At least two mound belts are present in the study area (Fig. 7C), separated by thin (1-3 m) inter-mound wackestones.

The platform facies changes rapidly to arenaceous packstone/grainstone facies and thins from 3 m to 10s cm in NE Oklahoma across a narrow (2-3 km), approximately E-W zone that coincides with thickening of underlying Heebner deltas (Figs. 5, 6, 7C). The packstone/grainstone facies apparently onlaps the Heebner deltas (Figs. 4, 6A,B,C) and has common lateral and vertical changes. The transition zone was probably a trough bordered by the mound facies to the north and Heebner deltas to the south, where thin and coarse-grained sandstone, packstone and grainstone, and conglomerate dominate (e.g., Fig. 4). They are replaced by calcareous sandstones and shales in the southern part of the subsurface study area.

Upper Highstand Systems Tract. The thick Heumader shale of the upper HST in SE Kansas changes to deltaic deposits and thickens in NE Oklahoma gradationally across a wide E-W-oriented zone (Figs. 5, 6, 7D). Two to three episodes of deltaic progradation first filled topographic lows, then extended to N and NW (Figs. 5, 6). As a result, deltaic sandstone or prodeltaic shale overlies directly the Plattsmouth Limestone in some areas (Figs. 5, 6).

The base of the Heumader is gradational in the shale-dominated SE Kansas, but sharp in the deltaic province in Oklahoma. The top is gradational where exposed. The Heumader architecture is similar, to a certain degree, to that of the Heebner mcs; both units have a northern shale-dominated tract and a southern deltaic tract. But the shale-dominated facies is not anoxic and the transition zone is wide for the Heumader. The similarity suggests a similar paleogeographic setting; the dissimilarity suggests different controlling processes (see Part II).

DEPOSITIONAL EVENTS AND DEVELOPMENT OF THE LHPH SEQUENCE

The stratigraphic architecture of the LHPH sequence was built in four stages on the Snyderville peneplain (Fig. 1). First, the encroaching shoreline due to a sea-level rise developed a coastal plain-shoreline environment in the study area. During the ensuing marine flooding, upper-shoreface erosion excavated soil nodules in the Snyderville paleosols and cannibalized coeval coastal plain-shoreline deposits, resulting in the deposition of a soil-nodule conglomerate in the lower shoreface and inner shelf as the first preserved transgressive deposit (Yang, 2004). Fossiliferous shale and Leavenworth Limestone were deposited uniformly when the flat shelf rapidly deepened. The shelf was shallow and contaminated by coastal siliciclastic influx at the southern edge of the study area. Second, carbonate production terminated and hemipelagic clay was deposited on Kansas shelf in the Heebner time.

The basal thin gray shale signifies the onset of shelf anoxia prior to peak flooding. Slight

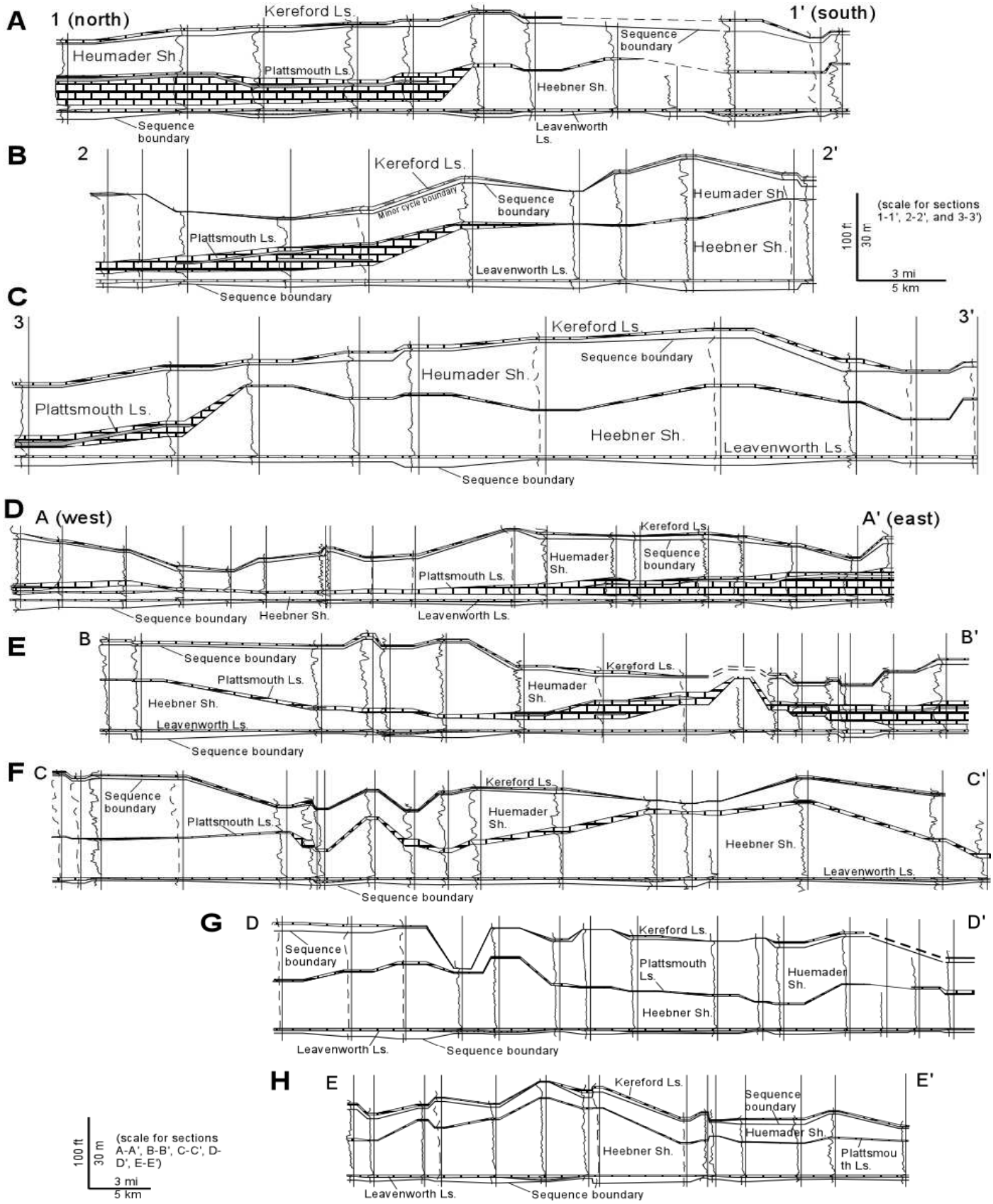

Figure 6. N-S stratigraphic cross sections 1-1', 2-2', 3-3' (A – C) and E-W stratigraphic cross sections A-A', B-B', C-C', D-D', and E-E' (D – H) of the LHPH sequence. Stratigraphic datum is the base of Leavenworth Limestone. SP logs are dashed; gamma-ray logs solid.

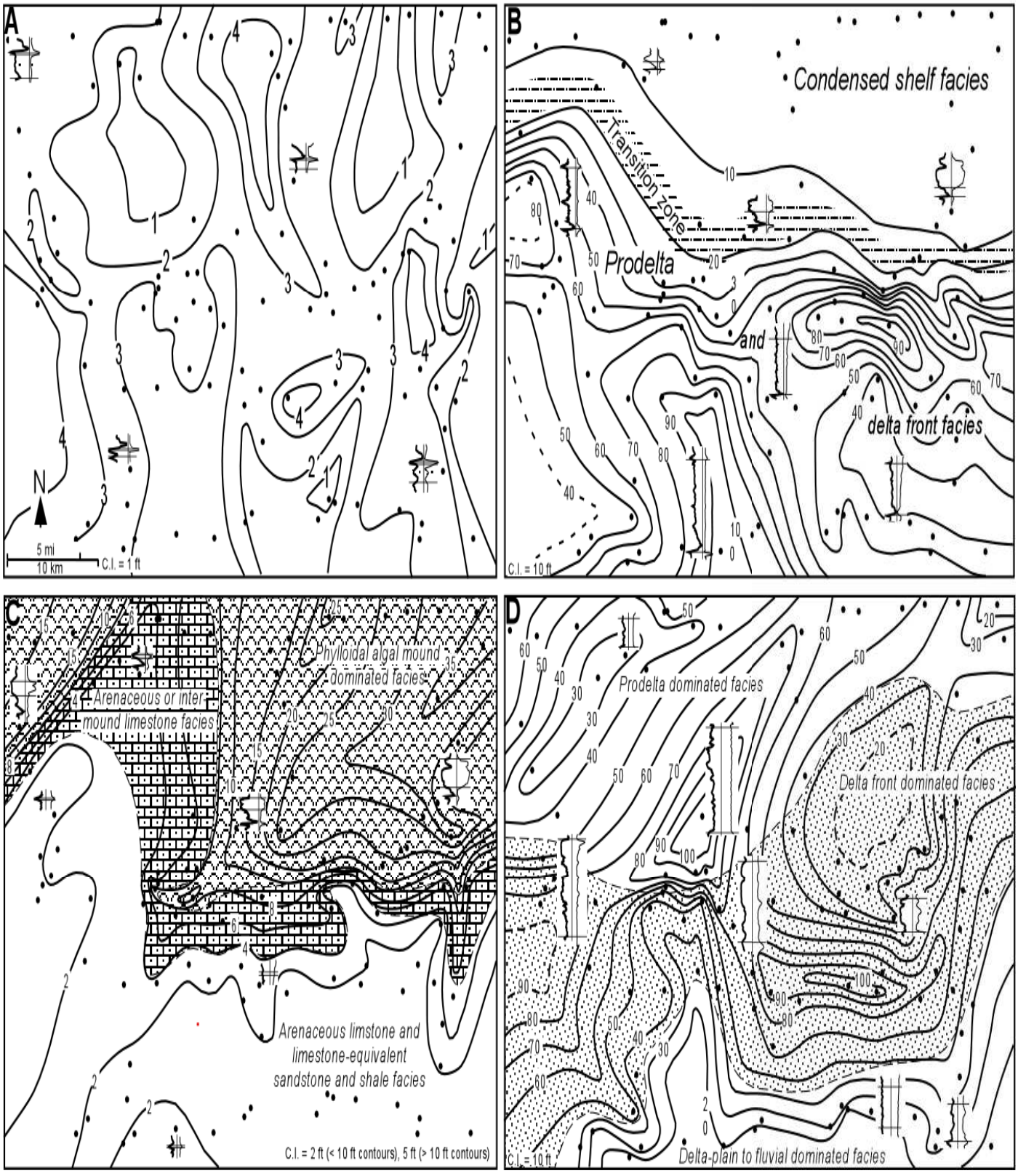

Figure 7. Isopach maps, log facies, and paleogeographic interpretation of (A) transgressive Leavenworth Limestone, (B) Heebner Shale mcs, (C) lower HST Plattsmouth Limestone and equivalent, and (D) upper HST Heumader Shale of the LHPH sequence. In the log facies, gamma-ray (left) and SP (right) logs, and upper and lower boundaries of a unit are shown. For the Leavenworth Limestone log facies, the lower cycle boundary (solid line), Leavenworth Limestone (solid bar) and the underlying limestone conglomerate (dotted bar), where present, are shown.

thickening of the shale to the south may indicate initial northward prodeltaic influx (Fig. 5). During peak flooding and maximum shelf deepening, an anoxic bottom condition was fully developed on the shelf (Heckel, 1977), and northward deltaic progradation sourced from the Ouachita Mountains also intensified (Moore, 1979; Rascoe and Adler, 1983) due to renewed Ouachita thrusting at the beginning of the Oread time (Heckel, 1994). The upper fossiliferous shale indicates a return to dysoxic to oxic conditions on the shelf immediately after peak flooding. In the meantime, deltas prograded northward in NE Oklahoma for at least ~30 km and then were diverted to W and NW, probably by strong alongshore currents associated with an upwelling system (Figs. 2, 5, 6, 7B; see Part II).

In the third stage, when sea level dropped slowly and shelf shallowed, the lower Plattsmouth wackestone was deposited and then aggraded into phylloidal algal mounds, forming the lower HST. In the southern nearshore margin, siliciclastic influx was minimal, perhaps caused by diminished sediment production in the Ouachitas, sediment trapping in the upland and/or coastal sinks (cf. Yang, 1996), or diversion of depositional loci outside of the study area. Instead, mixed skeletal grains and siliciclastics accumulated. The transition between platform limestone and nearshore mixed carbonate and siliciclastic deposits is in a narrow trough where strong alongshore currents had prevented siliciclastic invasion onto the carbonate shelf (see Part II). Deposition of the upper HST occurred during late and maximum sea-level fall. Rejuvenated siliciclastic influx mainly from the south suppressed carbonate production. Deltaic progradation renewed in NE Oklahoma while lagoonal mud accumulated in SE Kansas. However, the sea probably did not completely withdraw from the study area, as indicated by the limited occurrence of fluvial deposits and paleosols in the upper Heumader deposits.

*Part II of this paper will be published in the next issue of the Bulletin.

For Guidelines to submitting technical papers please refer to page 43

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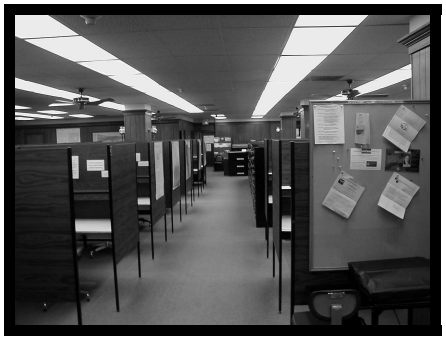

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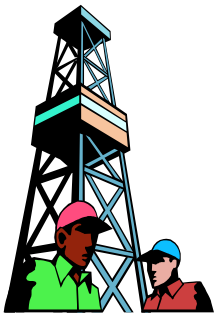

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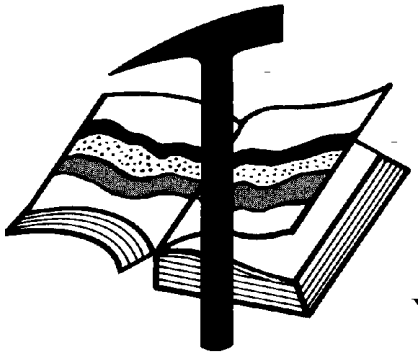

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Larry Skelton

Job! Job! Job! Job!

The KGS Nomenclature Committee has openings and is seeking individuals who would like to serve on the Committee in 2006. The Committee usually meets once a month, or every two months, depending on agenda, to recognize and name new oil and gas fields. Meetings are held at 12:30 pm on the last Tuesday at the Library, and conclude before 2:00 pm.

If interested, contact Committee Chairman:John Morrison at 316-263-8281, or E-mail: jmorrison@iogsi.com

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Larry Skelton

MEMORIAL:

Lester Wilkonson, a prominent Kansas oil operator and Petroleum Engineer died on December 26, 2005. Lester had been a member of the Kansas Geological Society until 1996.

He was born in Sapulpa, Oklahoma in 1910 and attended the University of Oklahoma, where in 1933 he received a degree in Petroleum Engineering. Originally he worked in Oklahoma and Wyoming prior to serving as a Lieutenant in the Navy during World War II.

Lester and his family moved to Wichita in 1950. He established a practice as an independent petroleum engineer, and became an expert in the Hugoton Gas Field. Besides his own activities, he served as a consultant to the Kansas Corporation Commission.

He was very philanthropically oriented. He endowed a chair in engineering at OU as well as establishing a fund with the Wichita Medical Research and Education Foundation for Cancer research in honor of his wife Maizie, who died in 1973 from the disease. He also supported a number of other charitable organizations and provided funds for students.

He is survived by his son, Arthur, and two grandchildren. A memorial has been established with Wichita Medical Research and Education Foundation.

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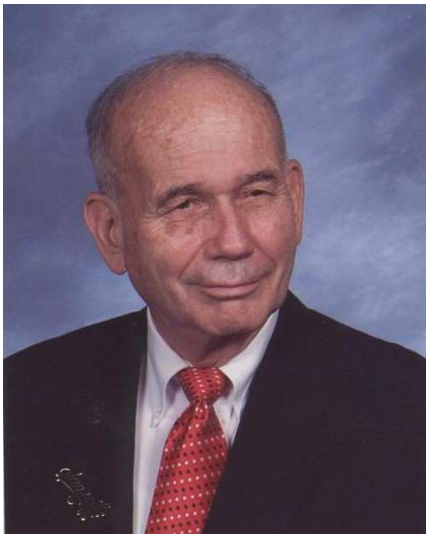


It has been my observation that writers are hard up for material when they write about themselves, and I find that I am in that situation. As you all know I can be very boring and I have propensity for the trivial so don't read beyond this point.

Lyons, Kansas was my birthplace, and the birth could be labeled by some as a "mistake" inasmuch as my mother was forty and my father forty two at that time. My brother, Herman, was eighteen years older, sister, Gertrude, fifteen years older and sister, Wilma (Billie), thirteen years older.

My father, at the age of 2, came to Lyons from Ohio in 1886. His father was a Civil War veteran who was too young for the Ohio regiments, so he crossed the river and joined the West Virginia Volunteers fighting under Custer in the Shenandoah Valley. Of course this was before Custer met his fate at the Battle of the Little Big Horn. My father and grandfather were in the "horse business", draft horses that is, Percheons, Belgians, Mules etc. My father left this business when the tractors came to the fore in 1926. After this he worked as a carpenter, grocery store owner and was essentially a "jack of all trades". Eventually he became a "small town entrepreneur" owning farms, houses, buildings etc. One thing he wouldn't do was go in debt. He drilled into me that you never purchased anything unless you could pay cash. In recent years one of our local geologists led a discussion as to whether I or another geologist was "the tightest geologist in Wichita"

My mother was born in a small town in New York, but the family drifted to South Dakota as her father wanted to follow the mining industry. After he departed for parts unknown, the family settled in Lyons.

I had a completely undistinguished childhood in Lyons, but I believe I was considered a failure in a sense by my family, as I was the only one of the children who was not the Valedictorian of their high school class. In fact, when I was about 10 years old, my brother became mad at me over something and told me that "I would never amount to anything". I have been trying to "amount to something " ever since. Unfortunately, I am running out of time. I was always a "wantabee athlete" but I didn't have the body or skills. In my senior year I reached 135 pounds and went out for the football team. I was so slow the coach designated me as a guard at 135 pounds .I did achieve my one claim to athletic fame when I tackled Ralph Brock, a successful attorney in Wichita, in a game with Sterling. My career ended when I dislocated my elbow in a game with Ellinwood. They took me to the local doctor's office to pull the elbow back into shape. As I was coming out from under the anesthesia, the only face that I saw was that of a chiropractor who had a son on the team, and who lived across the street from our home. He had been a butcher before becoming a chiropractor. Being groggy and recognizing him standing over me, it was quite a shock.

I did play in the high school band without any real musical ability. Currently it is suggested that I not sing in church and the remark has been made that I sing "between notes"

Following graduation in 1944, I attempted twice to join the Navy. Unfortunately, I had never had my blood pressure taken, and I listened to a friend tell how much trouble he had getting in because of a high reading. My pressure started out at 150 or 10, over the limit. After resting for 30 minutes it was 180. The second time when I attempted to join as a combat air crewman, a medical corpsman said, "you would be better off out, and we would be better off without you"

With every indication being that I was not going to be in the service, I enrolled in the Fall at Kansas State College of Agriculture and Applied Science. It was foreordained that I attend there as my brother, two sisters, two brother-in-laws, and a sister-in-law had attended there. I decided to enroll in geology as I liked to collect "pretty rocks" at our summer cabin in Spar City, Colorado and I understood that geology had something to do with rocks.

I was notified to report for a pre-induction physical. This time I had my blood pressure taken by an army corpsman who said to me "you a little nervous bud" and then wrote down 140 for my blood pressure, and I was in.

I left Kansas State prior to Christmas, and since I wasn't able to finish any courses, I lost all credits. At home, over the Christmas holidays, I decided to go ice-skating with friends. The runner on one of my skates was trapped under some shallow ice and I fell backwards injuring my ankle. I then reported to Fort Leavenworth and was inducted into the army. Two days after induction, while receiving shots, I asked them to re-tape my ankle. At that point they decided to X-ray it. They returned and said to me, "do you know that you have been walking on a broken ankle?" As a consequence of this, I spent my first five weeks in the army at the post hospital at Ft. Leavenworth.

Next stop was Camp Fannin, in Tyler, Texas for basic training. This was interrupted by an emergency furlough when my mother died, and I had to start over. What I remember most about basic was our field Sergeant who was from east St Louis, Illinois. His favorite expression was "youse guys are going to be hurtin' come weekend", and we generally were. On occasion they read the daily news to the assembled company and on one of these occasions he read the following "Admiral Nimintz reports the Japs have been inflirtuatin' our lines on Okiwahwah"

From Fannin we went to Camp Rucker, in Alabama for a short time. We were then placed on a troop train with Camp Adair, an Oregon destination. While on a siding in Laramie, Wyoming, we learned that the first atomic bomb had been dropped. We then proceeded to Camp Adair, and then after a short stay we proceeded to Seattle where we boarded a navy transport. Apparently we were originally scheduled to go to Saipan where we were to be replacements for infantry riflemen killed in the invasion of Japan, as our mail went there for 6 weeks. Instead we docked in Honolulu, Hawaii where we were assigned primarily to positions in offices. I was assigned to the Staff Judge Advocates office for the 24th Major Port of Honolulu Transportation Corp. I reported to duty and immediately got off to a bad start. The Lt. Colonel came into the room to orient me and I didn't stand at attention which resulted in a severe reprimand. What do I remember most? Perhaps one item

stands out. The officers were not allowed to drive army vehicles. They had to have enlisted men as drivers. We had an office picnic and I was driving the jeep for our Lt. Colonel and his guest, a full Colonel in charge of legal activities for the entire Middle Pacific command. They decided to steal a pineapple out of a field for which there was a $50 fine, thus I ended up being the "wheel man" and driving the "getaway jeep" for the top legal officers in the Middle Pacific. Of course, we know who would have taken the "rap" for this offense, if we had been caught. Also, before our Colonel returned home to Mobile, Alabama, where he was a government lawyer, he had the enlisted men in the office sand paper "Property of the US Government off a number of law books he was taking with him. After a year in Honolulu, I was shipped back to California and discharged at Camp Beale, Marysville, California. I have often said of my duty in Hawaii, "it was tough duty, but someone had to do it". There was a saying in the army that if you stayed around long enough they made you sergeant. This is apparently true as I was discharged as a Tech Sergeant. One time after doing Ray Goodin's profile and learning that he had been an enlisted man and having done a number of profiles of pilot/officers I said to Ray, "Ray I think you and I won the war as we were the only two enlisted men in the service"

I returned to geology at Kansas State in the Fall of 1946. I had the feeling that I was "way behind", so in order to catch up I crammed everything into three years and one summer session at CU. I graduated in the Spring of 1949. While at K-State, I was privileged to have as classmates: Charlie Steincamp, Dick Hoover, Don Strong, Bernard Lounsbury, Dick Roby, Max Houston, Lee Poulsen and one not as familiar to KGS members, John Scherer of Midland Texas. John is my good friend that refers to me as a "Damm Yankee", although he was raised in Newton. He also calls me a "fake Catholic" because I am an Episcopalian or "Whiskeypalian" as Hoover use to say. I am also an "AAPG hack" according to John. John was national president of SIPES.

1949 was not a good year to graduate, although I finally found employment with Cities Service. My brother always thought he got me the job, although he was in Purchasing not Exploration. I was assigned to the Oklahoma City office, which was located in the old office of the Indian Territory Illuminating Oil Co. (ITIO). Here I was very fortunate to be mentored by Bill Decker and G.T. McIntyre, two CSO geologists who wanted me to know everything they knew, and then some. The first test that I was involved with was in the Golden Trend area of Oklahoma. CSO was supporting a Lario wildcat. The Lario geologist said "I have run 53 DST's and never had a packer failure". Guess what happened on the 54th. Among other wellsite jobs, I sat on wells in the SE Frederick Field, Tillman County, Oklahoma. There I encountered one of the fabulous characters of the "Oil Patch". His name was S. D. (Doug) Johnson. Others he promoted were Richard Arlen, old time movie star, Gene Autry, and others. He would swab to the pits and set them on fire to attract a crowd. On one lease he had two pump jacks and was getting two allowables, but there was no hole beneath one of the pump jacks. Later he became a prominent operator in Denver. He found a very small gas well in the fractured Niobrara Shale along the Front Range. One night he secretly loaded the hole with trucked-in oil and then the next day after lining up media representatives and others at the Petroleum Club windows, he opened the valve and let it "blow out.

The Denver Post representative referred to this discovery as the Alzuela field, as it was supposed to run from Alaska to Venezuela'

After a year in Oklahoma City, I was transferred to Gt. Bend to take the place of "Cowboy" Jim Morris, who had quit to go work for Petroleum, Inc. in Wichita. The situation in Gt. Bend was entirely different than OKC. I had Cowboy's "nightrider" job, as had a number of local geologist before him. We went to all support tests, but they would not accept the reports of the geologist on the well, only those of the CSO geologist. We were not allowed to graph drilling time or take adjoining well electric logs to field. I attempted to do this and was reprimanded with "don't take that log, you might get it dirty"

I was also reprimanded when I went into the District Geologist's office, where the supplies were kept, and attempted to take four pencils to the field I sat on approximately ninety tests that year, and I believe I averaged about 2 hours of sleep a night. I now use this as a "brain damage excuse" for my lack of knowledge. At one point, they were violating some technicality in the wage and hour laws, so they fired me in the morning and rehired me in the afternoon at $10 more per month. During my two years with Cities, I had four wrecks. They sent a safety engineer out to presumably check everyone's reaction time, but I believe it was principally mine. He was amazed to find that I had the fastest reaction time of anyone in the office. Another incident from this period comes to mind. I was the support geologist on a test that Pickrell was drilling. They had drilled about 200 feet of conglomerate, but I was there to see that they followed the CSO requirement of reaching the Arbuckle. There was only one joint of drill pipe on the rack. Their Drilling Superintendent, Cecil Burton, a character in his own right, was on location. He said to me "Son, if we don't find Arbuckle while drilling with that joint I'm going to place that joint where the sun never shines" (well those were not quite his exact words). We found Arbuckle while drilling with that joint, we really did!

After a year, Jim Morris called me about taking a position with Petroleum, Inc. At the time, the District Geologist was standing alongside my desk. After finishing the call, I went into his office and said "I want to take tomorrow off to go to Wichita and talk to Petroleum, Inc. about a job" As I remember his response was "that's about the stupidest thing I have ever heard of" and it probably was. So I said 'then I believe I will just quit', and I did.

I interviewed with Eric Jager, and he offered me the position. I asked for $325 and he gave me $400. This is something I will always remember. This was in 1951 and from 1951 until the Fall of 1953, I worked out of the Wichita office with Jim Morris, "Big Bob" Jinkins, Dan McMillan, Karl Becker, Cullen Thomas and others.

In September of 1953, Pet. Inc. decided to participate in the D and J sand play in the Denver Julesburg Basin of Colorado and Nebraska. They needed 4 drilling deals to move a company owned rig, Garvey Drilling, to Colorado. I was with Eric when we looked at 20 deals and picked 4, although as a very junior geologist, I didn't have a whole lot of input. The second deal drilled in Morgan County down dip from two shut-in gas wells, which resulted in the oil discovery of the Adena Field. Later a geologist working for me named a play the "knuckle head play" after me, as the only play a knuckle head like me could understand was a tite well up dip and wet well down dip. Surprisingly, sometimes those plays worked. With the Adena discovery, the company decided to open an office in Denver and they transferred me to Denver

to open an office. As our exploration effort grew, they put the office management under a landman, and this arrangement continued for a number of years

Early on in Denver, our office was in the Commonwealth Building. One day I was on the elevator with a very attractive young woman. I learned that her name was Mary Sue Barlow, and that she was the secretary to the Chief Geologist of Colorado Oil and Gas. I arranged through a mutual acquaintance to meet her. We continued to see each other, but in the summer of 1954, I and a Lion Oil Co. Landman decided to take a vacation trip to Alberta, Canada. His name was Fred Glasco. After our trip, I decided I had met the woman I wanted to marry. She was working for an overbearing geologist so it is very surprising that she agreed to marry another one. We were married Oct. 9, 1954, in Denver, with Fred Glasco for our best man. Our honeymoon was essentially one weekend as I had used up all of my vacation time on the trip to Canada with Fred, thus I have always said that I really went on my honeymoon with Fred. Sue and I have two children: Craig, a Chemical Engineer, and Patty, who worked for the University of Denver for approximately 20 years.. Both children currently reside in the Denver area.

Our operations in the Rocky Mountains gradually expanded to include offices in Casper and Calgary, Canada where we operated under the name of Garvey Exploration as the provincial government said that Petroleum, Inc, sounded too common, too much like a penny stock company etc. In 1975 I returned to Wichita as Vice-President in charge of Exploration. The company was very active in those years participating in 250-260 working interests per year. The only word I have found to describe this frantic activity is that we were "promiscuous". Fairly recently I took a test to determine my sense of urgency. Out of approximately 150 individuals, I was one of three that tested out to be addicted to urgency. When asked why I thought I was addicted, I gave an answer which they didn't understand. I said I formerly worked for a company that drilled 250 working interests test per year, and I had to be addicted. When reflecting on all of the dry holes drilled, I sure wish that I had a chance to "do it all over" and hopefully do a better job. As previously stated, if you stay around long enough in the army they make you Sergeant, well the same thing happened with Pet. Inc., after I had been there 34 years, they made me President.

In 1986, the oil industry was in a down cycle, and I was forced to cut salaries of those making over $30,000 by 6 or 7%. I thought I should show the way and set an example so I cut mine by 20%. As things improved, a point was reached where a district geologist was making more than I was as President/Exploration Manager. When I questioned whether this was a proper situation, I was told that in the building trade there were many cases where "the bricklayers made more than the foremen" and that was the only answer I ever received.

I truly enjoyed working for Petroleum, Inc. with all the activity involved and the association with quality individuals. In 1988, I wasn't fired, but it became obvious that my services were neither required nor desired. I retired.

Looking around for what path I should take, I became aware that there were many geologists who were better explorationists than me with vast experience in "turning deals" (I had spent my career on the taking side) who were not able to sell their deals in this period. I didn't have any reason to believe that I could be competitive in these circumstances. Over the years I had some "lucky breaks" on some minor investments

not necessarily of my making, and with social security and a moderate outside Income, I could survive and do whatever I wanted to stay busy. I more or less settled on being a "professional volunteer", working in a number of organizations, particularly those involved with the geological profession

While in Denver, I became involved in martial arts, at my wife's insistence. She said I wasn't doing enough with my thirteen year old son, and he was enrolling in karate. Later, I became involved with the Korean martial art of Taekwondo. Once again, sticking around long enough has paid off. I am now a 6th degree Black belt after 37 years of involvement and this has been accomplished in spite of the fact that I possess limited athletic skills.

Since I have not been an instructor, I have searched for some other way to make a contribution, and for thirteen years I have published a Black Belt Association newsletter about eight times per year.

In the professional sector, I have held the presidency in the Rocky Mountain Association of Geologists, Kansas Geological Society and the American Association of Petroleum Geologists. Obviously, the "stick around" rule has kicked in. In every case, the first time I was nominated and ran for office, I was defeated. I am not sure why I was nominated the second time unless there was a shortage of qualified candidates. It has been stated in print that while some others and I were presidents of the AAPG, the "wheels practically came off the organization". This is something that is a bit hard to live with.

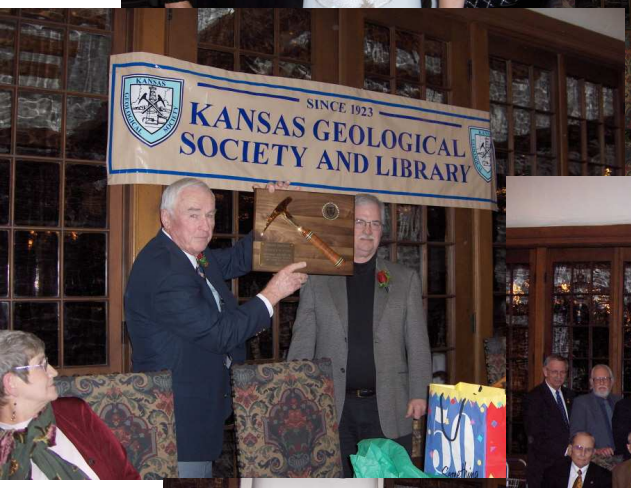
One activity that has really been enjoyable has been the writing of profiles of local geologists who are over seventy years of age. Many of them have wonderful tales to tell.

Another activity that I have enjoyed has been my avocational archaeology efforts. I had the opportunity early on to work on an 8000 year old site near Greeley Colorado under the direction of Dr. Marie Wormington, an authority on the Paleo-Indian. This opportunity arose because I was acquainted with her husband, Pete Volk, who was a geologist. Pete worked for his brother Russell Volk, owner of Plains Exploration, a company at one time active in Stafford, County and elsewhere.

I have always enjoyed attending college and have credits from at least six. Here again, I might be listed as a failure, having acquired 230 hours of credit, but still having only one BS degree.

Once after delivering a Visiting Geologist Program presentation at the University of Kansas, a professor critiqued the talk with the remarks that it was "long, rambling and I didn't make my point". I think that with this profile, his comments have proved to be correct.

2006 KGS ANNUAL BANQUET HIGHLIGHTS

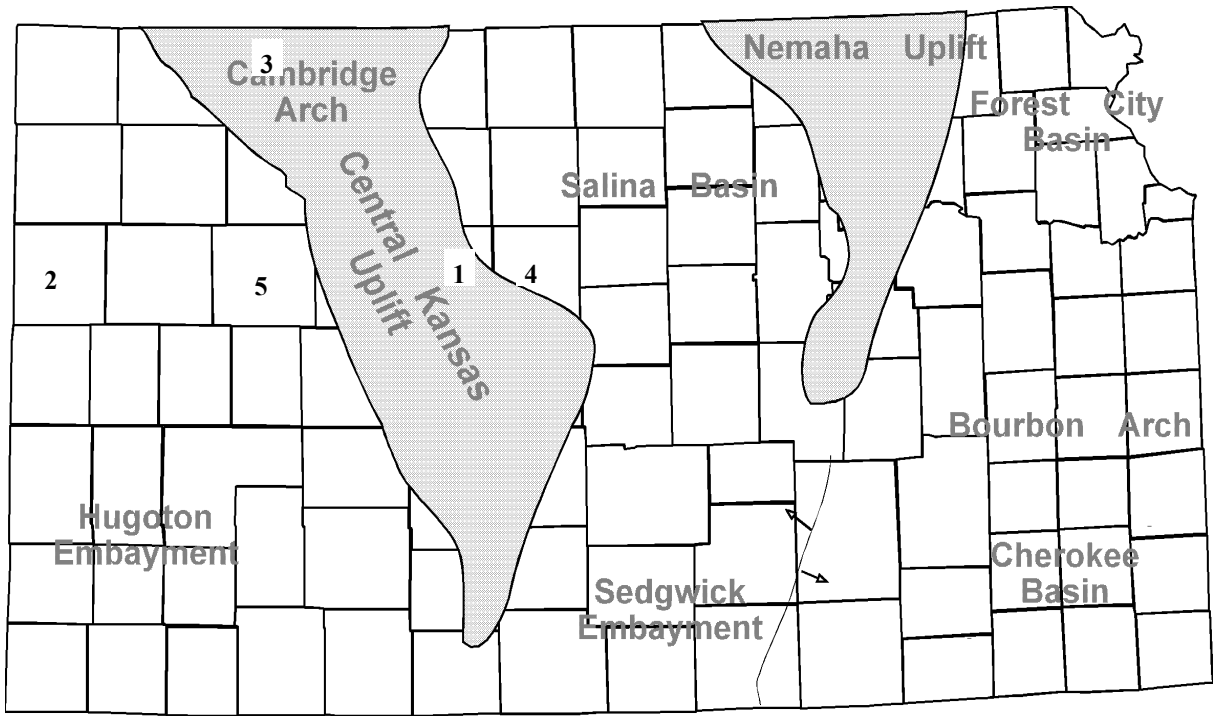


KGF MEMORIALS

Name	Dc'd Dte	M'l Est.
Dan Bowles	09/89	1990
John Brewer	10/89	1990
George Bruce	08/89	1990
Robert Gebhart	01/90	1990
Ray Anderson, Jr.	11/90	1990
Harold McNeil	03/91	1991
Millard W. Smith	08/91	1991
Clinton Engstrand	09/91	1991
M.F. "Ted" Bear	10/91	1991
James & Kathryn Gould	11/91	1991
E. Gail Carpenter	06/91	1993
Benton Brooks	09/92	1992
Robert C. Armstrong	01/93	1993
Nancy Lorenz	02/93	1993
Norman R. Stewart	07/93	1993
Robert W. Watchous	12/93	1993
J. George Klein	07/94	1994
Harold C.J. Terhune	01/95	1995
Carl Todd	01/95	1995
Don R. Pate	03/95	1995
R. James Gear	05/95	1995
Vernon Hess	06/95	1995
E. K. Edmiston	06/95	1995
Jack Rine	07/95	1995
Lee Cornell	08/95	1995
John Graves	10/95	1995
Wilson Rains	10/95	1995
Heber Beardmore, Jr.	09/96	1996
Elmer "Lucky" Opfer	12/96	1996
Raymond M. Goodin	01/97	1997
Donald F. Moore	10/92	1997
Gerald J. Kathol	03/97	1997
James D. Davies	08/88	1997
R. Kenneth Smith	04/97	1997
Robert L. Dilts	05/97	1997
Delmer L. Powers	06/72	1997
Gene Falkowski	11/97	1997
Arthur (Bill) Jacques	1/98	1998
Bus Woods	1/98	1998
Frank M. Brooks	03/98	1998
Robert F. Walters	04/98	1998
Stephen Powell	04/98	1998
Deane Jirrels	05/98	1998
William G. Iversen	07/98	1998
Ann E. Watchous	08/98	1998
W.R. "Bill" Murfin	09/98	1998
Donald L. Hellar	11/98	1998
Joseph E. Rakaskas	01/99	1999
Charles W. Steincamp	02/99	1999
Robert and Betty Glover	10/96	1998
Howard E. Schwerdtfeger	11/98	1999
W. W. "Brick" Wakefield	03/99	1999
V. Richard Hoover	01/00	2000
Warren E. Tomlinson	01/00	2000
James A. Morris	01/00	2000
Eric H. Jager	03/00	2000
Kenneth W. Johnson	03/00	2000
Dean C. Schaake	03/00	2000
Fred S. Lillibridge	05/00	2000
Jerry A. Langrehr	07/00	2000
Clark A. Roach	07/00	2000
Floyd W. “Bud” Mallonee	10/00	2000
Ralph W. Ruuwe	09/00	2000
Robert L. Slamal	02/01	2001
Jerold E. Jesperson	06/01	2001
William A. Sladek	06/01	2001
Harlan B. Dixon	06/01	2001
Edward B. Donnelly	08/01	2001
Richard P. Nixon	02/02	2002
Robert W. Frensley	12/01	2002
Gerald W. Zorger	01/02	2002
Don L. Calvin	03/02	2002
Claud Sheats	02/02	2002
Merle Britting		2002
Harold Trapp	11/02	2002
Donald M. Brown	11/02	2003
Elwyn Nagel	03/03	2003
Robert Noll	09/03	2003
Benny Singleton	09/03	2003
Jay Dirks		2003
J. Mark Richardson	02/04	2004
John “Jack” Barwick	02/01	2004
Richard Roby	03/04	2004
Ruth Bell Steinberg		2004
Gordon Keen	03/04	2004
Lloyd Tarrant	05/04	2004
Robert J. “Rob” Dietterich	08/96	2004
Mervyn Mace	12/04	2004
Donald Hoy Smith	03/05	2005
Richard M. Foley	06/05	2005
Wayne Brinegar	06/05	2005

EXPLORATION HIGHLIGHTS

By John H. Morrison, III
Independent Oil and Gas Service



(1) **Damar Resources Completes Discovery for 140 BOPD:** (Wichita, KS - IOGsi News Service 12/26/05) - Damar Resources, Inc., of Hays (KS), is producing 140.3 barrels of oil per day with only a trace of water at their MKB #1, establishing the new Hertel East Field in Ellis County. Spotted in approximately the E/2 E/2 NE/4 in section 16- T14s- R16W, the well is producing commingled crude from the Shawnee (Toronto Lime) at 3117 to 3121 ft., the Lansing 'A' Lime from 3140 to 3146 ft., and the Lansing 'C' Lime from 3169 to 3173 ft. New isolated oil reservoir was discovered on basis of 3-D seismic work of the area. Discovery Drilling tools were used to drill the well to a total depth of 3,489 ft. in October. First oil sales were started on November 20, 2005.

(2) **Red Oak Energy Establishes New Oil Field:** (Wichita, KS - IOGsi News Service 12/26/05) - Red Oak Energy, Inc., of Wichita (K), has discovered new Morrow Sand oil deposits in Wallace County in northwest Kansas. The Popp / Smith #1-6, located in NW/4 of section 6- T15s- R40W, is producing over 60 barrels of oil daily from undisclosed depth. In the first two months, beginning in June '05, the well has produced 2667.1 barrels of oil, according to state production records. The new Ladder Creek pool opener was drilled to a total depth of 5200 ft. by Murfin Drilling tools. Well site is located four and one-half miles northeast of the Okeson Field, which has also produced oil and gas from the Morrow zone since 2002, and is seven miles south and three miles west of Sharon Springs, Kansas.

***(3)* Great Plains Energy Finals Discovery Well:** (Wichita, KS - IOGsi News Service 12/26/05) - Great Plains Energy, of Wahoo (NE), is producing over 100 barrels of oil per day at the Wasson Brothers Farms #1, located in NW/4 in section 36- T4s- R30W, about twelve miles west-northwest of Dresden, Kansas in Decatur County. The well is producing oil from undisclosed depth in the Lansing-Kansas City formation. Total depth is 4320 ft. Closest production lies nearly five miles away in the Prairie Dog Creek Field (LKC & Arbuckle oil). Great Plains has successfully offset their discovery to the west with the drilling of the Sauvage #1, approximately SE NE NE in section 35, which is said to be an even better well than the Wasson Farms, according to the operator. The new field has been named Swede Hollow.

***(4)* Double Eagle Exploration Expands Mahoney Field:** (Wichita, KS - IOGsi News Service 01/09/06) - Double Eagle Exploration, Inc., of Wichita (KS), has discovered a new isolated Lansing-Kansas City oil reservoir nearly one-half mile west of production in the multipay Mahoney Field in Russell County. The Laubhan #1-A, located in SW/4 of section 7-T14s-R12W, is producing 35 barrels of oil and 4 barrels of water per day from perforations shot in the Lansing 50 ft. zone from 2976 to 2981 ft. Crude gravity is 35 degrees API. The well was drilled to a rotary total depth of 3180 ft. by Berentz Drilling tools. First sales were made on October 12, 2005 at site located one and one-half miles south of Bunker Hill, Kansas. The well has been recognized as an infield discovery and extension of the Mahoney Field.

***(5)* Fair Oil Company Has New Oil Discovery:** (Wichita, KS - IOGsi News Service 01/09/06) - Fair Oil, LTD, of Tyler (TX), has discovered the Dowell North oil field in Gove County. The firm's #27-1 KS5C Dorothy York, spotted in C N/2 N/2 SE in section 27- T15s- R29W, is on pump producing an unknown amount of oil from Lansing-Kansas City perforations from 3976 to 3981 ft. Deposits were found five-eighths mile northeast of the Dowell West oil field that has produced over one-half million barrels of oil from the LKC and Cherokee formations since 1984. Operator used Val Energy drilling rig to drill the well to a total depth of 4400 ft. Field area lies eight miles north and 4.5 miles east of Healy, Kansas.

Starting Next Issue!!

Tales From The Dog House
By Bob Stolzle

We invite submissions for this column from anyone wishing to share any experiences relating to the industry that might give us a laugh, inform us of local history, or any other interesting tidbit. We will be experimenting with several ways to get your story, i.e. tape, written submission or personal interview.

If interested please contact Bob Stolzle @ 316-794-3400 or Kimberly Dimmick-Wells (see page 3)

GUIDELINES FOR MANUSCRIPT SUBMISSION TO KGS BULLETIN

Each issue of the Bulletin is published both as a hard copy and in electronic format on the KGS web site (http://www.kgslibrary.com). Most questions on formatting manuscripts for submission to the Bulletin can be answered by referring to recently published articles. The following topics also provide specific guide-lines to authors regarding manuscript preparation:

Cover Letter: include a cover letter with your submission that states: (i) that the manuscript has not been published elsewhere nor has it been submitted for publication elsewhere; and (ii) the name of the corresponding author in the case of multiple authors, and his/her contact information (e-mail address, fax and phone numbers).

Paper Length: maximum length of published papers is 5 Bulletin pages. As a general guide, double-spaced manuscript length (including text, references, all figures and/or tables & figure captions) should not exceed 7 pages of text and 2 full pages of figures and/or tables.

Color versus Black & White: All illustrations for the hard-copy of the Bulletin will be published only in black & white. Authors are encouraged to submit color versions of these same illustrations, however, for the on-line version of the Bulletin.

Organization:

- hard-copies of manuscripts ***and*** electronic versions of only the text (formatted in Word) must accompany each submission. Submitted manuscripts must be written in English;
- title should be in capital letters and centered. All first-order headings (e.g., INTRODUCTION, PURPOSE OF STUDY) should be centered and fully capitalized; second-order headings also should be centered, but only the first letter of each word should be capitalized (e.g., Previous Studies);
- manuscripts need not include an ABSTRACT, but must include INTRODUCTION and CONCLUSIONS sections;
- in referring to figures outside of parentheses in the text, use the full word – e.g*., Figure 1*. In referring to figures within parentheses in the text, abbreviate the word – *(Fig. 1; Figs. 1 & 2)*;. Figure captions must be included with manuscripts and be on a page separate from actual figures. They should be written as, for example*: FIG. 1. Location of study area in…*
- text reference to published papers should be abbreviated as: (i) two authors -- *Smith & Jones (1969*) *or (Smith & Jones 1969)*; and (ii) more than two authors – *Smith et al. (1969)* or *(Smith et al. 1969*). In the text and REFERENCES section, cite references in terms of date from oldest to youngest. In a REFERENCES section, follow citation style as in published articles in the Bulletin. Full references must be cited, including authors' names with initials only, date of publication, title of paper, where the paper was published (e.g., *AAPG Bull*.), volume number, and pages;
- prepare figures or tables so that all lettering is legible if the figure or table is reduced; avoid "crowded" figures/tables. Put each figure/table on a separate page and include the figure/table number in the upper-right corner of that page.
- interesting black & white images from your paper or study area that can be used for the hard-copy cover of the Bulletin, and the same image but in color for the digital version, are encouraged.

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KGS BULLETIN
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